Competency Standards for Caribbean Vocational Qualifications (CVQ)

CCITI40404 Level IV Network Engineering

Unit Code	Unit Title	Mandatory /Elective	Hours
ITICOR0021A	Apply Occupational Health and Safety procedures	Mandatory	10
ITICOR0031A	Work effectively in an Information Technology environment	Mandatory	10
ITICOR0041A	Communicate in the workplace	Mandatory	10
ITICOR0051A	Participate in a team or individually to achieve organisational goal	Mandatory	10
ITICOR1341A	Interact with clients	Mandatory	10
ITICOR0231A	Operate a personal computer	Mandatory	20
ITICOR0241A	Operate a word processing application (basic)	Mandatory	20
ITICOR0471A	Access the Internet	Mandatory	20
ITICOR0271A	Send and retrieve information via the Internet	Mandatory	20
ITINET0151A	Maintain equipment and consumables	Mandatory	20
MEMCOR0161A	Plan to undertake a routine task	Mandatory	10
ITICOR0091A	Provide quality service to customers	Mandatory	10
ITINET3032A	Install and terminate wiring systems	Mandatory	10
ITICSS3171A	Perform housekeeping duties	Mandatory	5
ITINET3061A	Use and maintain hand and power tools	Mandatory	10
ITIDAT1082A	Operate a word processing application (advance)	Mandatory	20
ITINET3122A	Prepare and present technical reports	Mandatory	10
ITINET2901A	Perform measurements and calculations	Mandatory	20
ITINET2912A	Interpret installation plan	Mandatory	15
ITINET2922A	Prepare for installation activities	Mandatory	10
ITINET2932A	Perform basic diagnostic testing	Mandatory	10
ITINET2942A	Prepare and install hardware products	Mandatory	40
ITINET2952A	Prepare and install basic network components	Mandatory	40
ITINET2962A	Review and maintain network system performance	Mandatory	30
ITINET2972A	Provide ideas for network solutions	Mandatory	15
ITINET2982A	Maintain knowledge of network systems and components	Mandatory	10
ITINET2992A	Observe network security procedures	Mandatory	20
ITINET3002A	Provide maintenance support services	Mandatory	20
ITINET3012A	Install electrical/electronic component	Mandatory	30
ITIDAT0202A	Customise packaged software for clients	Mandatory	20
ITINET3162A	Determine and resolve client computing problems	Mandatory	20
ITINET1322A	Maintain equipment/software inventory	Mandatory	20
ITINET1802A	Provide remote helpdesk support	Mandatory	20
ITINET1372A	Install software applications	Mandatory	20
ITIDAT0212A	Use advanced features of computer applications	Mandatory	20
ITINET1362A	Connect hardware peripherals	Mandatory	20
ITINET1502A	Determine and action network problem	Mandatory	30
ITIGEN3102A	Interpret and use manuals and specifications	Mandatory	5
ITINET1412A	Connect internal hardware components	Mandatory	30

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CCITI40404 Level IV Network Engineering (Cont'd)

Unit Code	Unit Title	Mandatory /Elective	Hours
ITINET1443A	Run standard diagnostic tests	Mandatory	30
ITIDAT0103A	Create user and technical documentation	Mandatory	20
ITINET1753A	Administer network peripherals	Mandatory	40
ITINET1483A	Provide network systems administration	Mandatory	40
ITINET1463A	Install software to networked computers	Mandatory	40
ITIDAT2903A	Install and optimise system software	Mandatory	20
ITINET1683A	Maintain equipment and software in working order	Mandatory	20
ITIDAT1473A	Provide advice to clients	Mandatory	20
ITIDAT1403A	Provide basic system administration	Mandatory	20
ITIDAT0193A	Migrate to new technology	Mandatory	20
ITIDAT2063A	Determine client business expectations and needs	Mandatory	20
ITIDAT1423A	Provide one to one instructions	Mandatory	20
ITINET1564A	Action and complete change requests	Mandatory	10
ITINET0073A	Relate to clients on a business level	Mandatory	20
ITINET3133A	Supervise installation activities	Mandatory	20
ITINET1223A	Install and configure a network	Mandatory	40
ITINET1453A	Install network hardware to a network	Mandatory	40
ITINET1673A	Implement maintenance procedures	Mandatory	20
ITINET1733A	Administer and configure a network operating system	Mandatory	40
ITINET1263A	Install and manage network protocols	Mandatory	40
ITINET3043A	Prepare installation plan	Mandatory	20
ITINET1123A	Acquire system components	Mandatory	10
ITINET1283A	Install and maintain a server	Mandatory	40
ITINET1103A	Review site for implementation	Mandatory	20
ITINET1783A	Monitor and administer network security	Mandatory	40
ITINET1573A	Rectify system faults on a live system	Mandatory	30
ITINET3173A	Perform system test	Mandatory	30
BSBCOR0103A	Deliver and monitor a service to customer	Mandatory	30
BSBCOR0113A	Maintain workplace safety	Mandatory	30
ITIDAT1523A	Establish and maintain client/user liaison	Mandatory	40
ITINET1003A	Select and install a router	Mandatory	30
ITINET1823A	Configure an Internet Gateway	Mandatory	30
ITINET0823A	Create code for networking	Mandatory	40
ITINET2393A	Coordinate and monitor tests	Mandatory	30
ITINET0993A	Install network bridges/switches	Mandatory	30
ITINET1013A	Install and configure router	Mandatory	30
ITINET0983A	Install intelligent hub	Mandatory	30
ITINET1383A	Maintain system integrity	Mandatory	40
ITIDAT1593A	Evaluate system status	Mandatory	40
ITINET2363A	Evaluate vendor products and equipment	Mandatory	20
ITIDAT0073A	Maintain ethical conduct	Mandatory	20
ITINET1114A	Scope implementation requirements	Mandatory	20
ITINET1134A	Evaluate and negotiate vendor offerings	Mandatory	20

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CCITI40404 Level IV Network Engineering (Cont'd)

Unit Code	Unit Title	Mandatory /Elective	Hours
ITINET1144A	Implement and handover system components	Mandatory	20
ITINET1154A	Conduct pre-installation audit for software installation	Mandatory	20
ITINET1164A	Conduct post implementation review	Mandatory	20
ITINET1244A	Build an intranet	Mandatory	40
ITINET1774A	Manage network security	Mandatory	20
ITINET1764A	Troubleshoot and resolve network problems	Mandatory	20
ITINET1234A	Install and manage complex networks	Mandatory	40
ITIPRG2084A	Develop and present a feasibility report	Mandatory	20
ITINET2104A	Produce network/communication design	Mandatory	20
ITINET2094A	Develop system infrastructure design plan	Mandatory	20
ITINET1544A	Determine maintenance coverage	Mandatory	20
ITINET2214A	Prepare disaster recovery/contingency plans	Mandatory	20
ITINET2304A	Determine best fit topology for a local network	Mandatory	20
ITINET2314A	Identify best fit topology for Wide Area Network	Mandatory	20
ITIPRG1874A	Implement secure encryption technologies	Mandatory	20
ITINET0754A	Build a security shield for a network	Mandatory	30
ITINET2174A	Design Information Technology security framework	Mandatory	30
ITIGEN3064A	Manage project integration	Mandatory	20
ITINET3114A	Develop comprehensive test plan	Mandatory	20
ITIGEN2114A	Model preferred system solution	Mandatory	30
ITIGEN0674A	Develop integration blueprint	Mandatory	20
ITINET0974A	Install Asynchronous Transfer Mode (ATM) Local Area Network (LAN)	Mandatory	30
ITIGEN0684A	Pilot the developed system	Mandatory	20
ITIPRG1884A	Install and maintain valid authentication processes	Mandatory	20
ITINET1604A	Implement system software changes	Mandatory	40
ITINET1274A	Implement change management processes	Mandatory	30
ITINET1554A	Coordinate change requests	Mandatory	20
ITINET1534A	Establish and maintain client user liaison during support activity	Mandatory	30
ITINET1694A	Undertake capacity planning	Mandatory	30
ITIGEN3054A	Apply skills in project integration	Mandatory	10
ITINET2664A	Design a server	Mandatory	30
ITINET0764A	Build and configure a server	Mandatory	30
ITINET1654A	Optimise system performance	Mandatory	30
ITINET2004A	Develop and conduct client acceptance test	Mandatory	20
ITINET2184A	Design system security and controls	Mandatory	30
ITINET1254A	Build an Internet infrastructure	Mandatory	40
ITINET1614A	Manage and review delivery of maintenance services	Mandatory	20
ITIGEN3074A	Manage procurement	Mandatory	20
ITIGEN3094A	Manage cost	Mandatory	20

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CCITI40404 Level IV Network Engineering (Cont'd)

Unit Code	Unit Title	Mandatory /Elective	Hours
ITICSS3421A	Install simple power circuit	Elective	20
ITIDAT0531A	Use personal productivity tools	Elective	20
ITINET3111A	Perform manual soldering/de-soldering	Elective	15
MEMMRD0091A	Terminate signal and data cables – (basic)	Elective	20
ITINET3071A	Install cable trays and cables	Elective	20
ITIDAT0141A	Operate a computing package	Elective	20
ITIDAT0131A	Operate computer hardware	Elective	20
ITIMED2672A	Select and employ multimedia tools	Elective	20
ITIDAT0252A	Design organisational documents using computing packages	Elective	20
ITIDAT0182A	Develop macros and templates for clients using standard products	Elective	20
ITINET1842A	Connect a workstation to the Internet	Elective	20
ITINET3022A	Diagnose and rectify faults in electronic components	Elective	40
ITINET3082A	Disassemble/assemble electronic components	Elective	40
ITINET3032A	Install and terminate systems	Elective	30
BSBSBM0012A	Craft personal entrepreneurial strategy	Elective	50
ITIDAT1173A	Document operational procedures	Elective	30
ITIGEN3123A	Recommend computer products and services	Elective	10
ITIDAT1513A	Assists with analysis of emerging technology	Elective	30
ITINET1183A	Prepare structured training for clients	Elective	10
BSBFLM0093A	Support continuous improvement systems and processes	Elective	30
ITIPRG2163A	Develop client user interface	Elective	40
ITINET1193A	Deliver structured training for clients	Elective	10
ITIPRG0713A	Implement configuration management	Elective	30
ITINET1493A	Assist with policy development for client support	Elective	10
ITIWEB1934A	Ensure privacy for users	Elective	20
BSBSBM0054A	Develop business plans	Elective	50
ITIWEB0784A	Configure a Payment Gateway	Elective	20
ITINET2944A	Manage and review contracts	Elective	20
ITINET3134A	Review security risk management plan	Elective	20
ITIGEN2134A	Develop configuration management	Elective	30
ITINET2154A	Develop detailed component specifications	Elective	20
ITINET3144A	Monitor and improve knowledge management system	Elective	20
ITIWEB2384A	Implement risk management processes	Elective	30

To be awarded this Caribbean Vocational Qualification (CVQ) all core competency standards must be achieved. Electives achieved with the qualification will be awarded unit statement of competency.

The nominal training hours are a guide for planning the delivery of Training Programmes.

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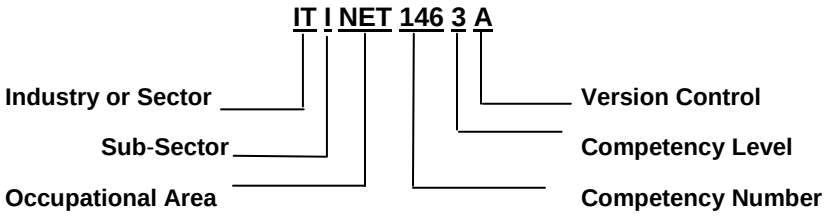
Legend to Unit Code

Example: ITNET1463A



Key: **Man – Mandatory; NET – Networking; DAT – Data Operation; WEB – Web Development; GEN – General; PRG – Programming; ITI Information Communication (Information Technology); SBM – Small Business Management; BSB – Business Services (Business); FLM- -Front Line Management; MEM – Metal Engineering (Maintenance); MRD – Maintenance Repair and Diagnostic**

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ITICOR0021A: Apply Occupational Health and Safety procedures

Competency Descriptor: This unit deals with the skills and knowledge required to support the organization's Occupational Health and Safety principles and practices. This unit applies to all individuals working in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Determine Occupational Health and Safety (OH&S) issues relating to immediate work environment	1.1 Health, safety and security procedures are correctly followed in accordance with enterprise policy and relevant regulations and insurance requirements.
	1.2 Breaches of health, safety and security procedures are identified and promptly reported.
	1.3 Any suspicious behaviour, packages or occurrences are promptly reported to the designated person.
2. Deal with emergency situations	2.1 Emergency and potential emergency situations are promptly recognised and required action is determined and taken with scope of individual responsibility.
	2.2 Emergency procedures are correctly followed in accordance with enterprise procedures.
	2.3 Assistance is promptly sought from colleagues and/or other authorities where appropriate.
	2.4 Details of emergency situations are accurately reported in accordance with enterprise policy.
3. Update knowledge of Occupational Health and Safety requirements	3.1 Information relating to Occupational Health and Safety regulations and requirements is obtained and stored where they can be accessed easily.
	3.2 Changes in the Occupational Health and Safety policies relating to Information Technology being disseminated is accessed and information is used.
4. Maintain safe personal presentation standards	4.1 Personal attire takes account of the workplace environment and health and safety issues.

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5. Share basic information on ergonomic issues	5.1 Basic ergonomic requirements of clients and colleagues are accurately identified.
	5.2 Information relating to basic ergonomic issues is provided promptly to clients and colleagues based on vendor requirements, workplace policies and the latest OH&S information.
	5.3 Information given on ergonomic issues is recorded and passed on to client and supervisor according to established procedures.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to following the Occupational Health and Safety procedures and practices. This unit applies to all the information and communication sectors.

Ergonomics advice may include:

- Occupational Health and Safety procedures
- using and cleaning Visual Display Units (VDUs)
- advice on footrests
- exercises
- times for breaks
- armrests
- chairs

Organizational safety documentation may include but not limited to:

- Occupational Health and Safety legislation
- organization safety procedures
- workstations and work environment procedures

OH&S issues including:

- workplace environment and safety
- use and maintenance of tools and equipment
- handling and disposal of materials
- protective clothing and equipment
- removal of obstacles
- personal grooming and hygiene
- response to emergency, fire and accident
- security of documents, personnel and equipment

Environmental safety issues may include:

- air quality
- lighting
- noise level
- cleanliness of equipment, furniture and surroundings
- fire hazards

Emergency situations may include but not limited to:

- accidents
- deranged customers
- fire
- flood
- robbery
- armed hold up
- bomb treats
- earthquakes

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EVIDENCE GUIDE

Competency is to be demonstrated by applying health and safety procedures in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

Evidence should include the ability to comply with Occupational Health and Safety requirements relating to the use of computing equipment through the practical demonstration of the identification of unsafe practices and taking action to correct them.

(2) Pre-requisite Relationship of Units

This is a core unit that underpins the effective performance in all other units. It is recommended that this unit is assessed in conjunction with other operational and service units.

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- OH&S principles, responsibilities and legislations
- ergonomics principles to avoid eye, wrist and back strain
- major causes of workplace accidents relevant to the work environment
- procedures and exercises to prevent strain and injury
- industry/sector insurance and liability requirements in relation to individual staff responsibilities
- common health, safety and security requirements in relation to workplace, environment and ergonomic considerations

Skills
The ability to:

- follow health and safety procedures in the information and communication industry
- identify and document major causes of accidents relevant to the work environment
- deal appropriately with security risks and emergencies
- communicate information on safety and health
- access information on OH&S requirements and guidelines

(4) Resource Implications

The following resources should be made available:

- work environment (actual or simulated) in the information and communication industry
- Occupational Health & Safety documents

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(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team .

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

Simulated activities must closely reflect the workplace and may need to take place over a period of time

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demons tration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These l evels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITICOR0031A: Work effectively in an Information Technology environment

Competency Descriptor:

This unit deals with the skills and knowledge required to assimilate into the information technology sector. This unit applies to all individuals working in the information technology sector.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Comply with general IT policies and procedures	1.1	Roles of key players of the information technology organisation are clearly determined and briefly explained.
		1.2	Career choices and options are determined.
		1.3	Policies and procedures are consistently complied with, as directed by supervisor.
2.	Promote the organisation and the IT department in a manner consistent with the organisational mission	2.1	Role of the information technology functions within the organisation is briefly explained.
		2.2	Organisation is consistently promoted in a positive way.
3.	Identify information technology equipment/software and operating system supported by the organisation	3.1	Information technology equipment/software and operating system supported by the organisation are clearly identified.
		3.2	Equipment, location and service requirements are accurately identified according to organisational requirements.

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RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to working effectively in an information technology environment and applies to all individuals in the information technology sector.

Key players may include:

- information Technology organisations
- vendors of IT products and services
- IT professional bodies
- industry publications
- government departments involved in IT industry promotion
- employer organisations
- relevant unions

Clients may include but are not limited to:

- internal customers
- external customers
- employers
- employees

Organisational policies/procedures may include but are not limited to:

- occupational health and safety procedures
- occupational Health and Safety policies
- anti-discrimination policies
- ethical work practices
- ergonomic considerations
- environmental factors
- statutory and vendor requirements

Information Technology unit may include:

- a separate branch
- a separate department
- a separate division
- integrated function of an organisation

Organisational standards maybe formal, well-documented methodologies or are non-existent. Best practices from industry maybe used for training delivery purposes.

Organisational variable may include:

- type
- size
- values
- culture

Equipment may include but are not limited to:

- personal computer
- network systems
- attached peripherals

Software may include but are not limited to:

- word processing application
- spreadsheet application
- database application
- graphical application
- browsers

Operating system:

- command line
- graphical User Interface

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Career choices may include but are not limited to:

- database clerk/operator/administrator
- web page designer/programmer
- data entry clerk/operator/supervisor
- network manager/administrator
- computer Programmer

IT functions in the organisation may include but are not limited to:

- enabling and maintaining use of IT
- producing documents/designs
- enabling electronic communication
- developing products
- technical support

EVIDENCE GUIDE

Assessment must confirm the ability to assimilate into the Information Technology department by demonstrating organisational values through the organisational code of conduct in work place interactions.

(1) Critical Aspects of Evidence

It is critical that competency is observed in the following aspects:

- Demonstrate compliance with organisational policies and procedures
- Identify roles and functions of key players in the industry
- Promote positive aspects of the organisation
- Demonstrate knowledge of Occupational Health and Safety
- Identify equipment, their location and maintenance requirements
- Demonstrate knowledge of the operations of the Information Technology department

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- basic principles of ethical practice when promoting the organisation in a manner consistent with the organisational mission
- basic principles of anti-discrimination to ensure consistency with the organisational mission
- broad knowledge of organisational code of conduct and values that are consistent with the organisational mission
- basic understanding of organisational systems
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- broad knowledge base of vendor product directions

Skills
The ability to:

- read and write at a level where general workplace documents can be written and understood
- verbally communicate clearly and precisely
- solve routine problems in the workplace while under direct supervision
- display basic analysis skills in relation to normal routine work processes
- use the features of applications
- employ basic skills in interpreting technical information

(4) Resource Implications

The following resources should be made available:

- work environment (actual enterprise or simulated)

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

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(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Simulated activities must closely reflect the workplace.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective work place practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

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Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITICOR0041A: Communicate in the workplace

Competency Descriptor: This unit deals with the skills and knowledge required to promote professional client support through verbal and non-verbal communication. This unit applies to all individuals working in the information and communication industry.

Competency Field: Communication

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Establish contact with clients	1.1 Requests and inquiries from clients are received in a polite and courteous manner.
	1.2 An effective service environment is created through verbal and non-verbal communication.
	1.3 Questioning and active listening are used to determine client support needs.
2. Process information	2.1 Inquiries are answered promptly.
	2.2 Requests are referred to appropriate personnel.
	2.3 Messages or information are recorded and passed on appropriately.
	2.4 Clients are informed of the process and progress of action.
	2.5 Follow-up action is taken according to organisational policy if required.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to communicating in the workplace and applies to all individuals in the information and communication industry.

Verbal communication may include but not limited to:

- answering enquiries from clients
- use of voice mail
- requests from colleagues
- informal discussions

Internal correspondence may include but not limited to:

- memos
- electronic mail
- bulletin boards

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Organisational policies and standards may include but not limited to:

- policies and procedures relating to answering client support enquires
- policies and procedures relating to answering telephone , writing messages and on-line enquires
- job descriptions/responsibilities
- service standards
- organisational code of conduct

Communication may include but not limited to:

- communicating with external clients and internal clients including team members, supervisors and management
- enquires related to routine client support needs
- clarifying and recording information and does not involve technical problem solving

EVIDENCE GUIDE

Assessment must confirm the ability to adhere to organisational policies in regard to external and internal client contact and the policies for processing of internal and external requests are followed.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- communicate information about work activities and processes
- receive and convey information accurately
- interact with other team members
- demonstrate literacy in relation to work requirements
- communicate effectively with clients
- record and document information

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- organisation's policies, procedures and code of conduct
- general OH&S principles and responsibilities
- spelling, grammar and punctuation
- principles of effective communication in relation to listening, questioning and non-verbal communication

Skills
The ability to:

- apply questioning and active listening techniques
- use problem solving skills for a defined range of predictable problems
- demonstrate basic negotiation skills in relation to other team members
- provide basic customer service
- convey meaning clearly, concisely and coherently
- communicate non-verbally in a clear and precise manner
- demonstrate literacy skills in regard to basic workplace documents

(4) Resource Implications

The following resources should be provided:

- Work environment (simulated or actual enterprise)

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

Simulated activities must closely reflect the workplace and may need to take place over a period of time.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITICOR0051A: Participate in a team or individually to achieve organisational goal

Competency Descriptor:

This unit deals with the skills and knowledge required to work individually and with others in an organisation. This unit applies to all individuals working in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Establish own work schedule	1.1 Work to be completed is clearly identified.
	1.2 Work is prioritised according to organisation guidelines.
	1.3 Urgent requests are prioritised and acted on according to organisational guidelines.
2. Participate in team structure	2.1 Members and roles of team are accurately identified.
	2.2 Tasks and goals are clearly identified and acted on promptly.
	2.3 Assistance is sought from team members when necessary.
	2.4 Feedback is given clearly and received accurately to ensure organisation goals are met.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to working individually or in a team and applies to all individuals in the information and communication industry.

Team variables may include but not limited to:

- peers
- supervisor
- other members of the organisation
- people from a range of cultural, social and ethnic backgrounds
- autonomy and responsibility of the team
- responsibility of team members
- life of the team

Organisation variables may include but not limited to:

- organisation charts and work flow guides
- time line for tasks and goals
- critical policy rating

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EVIDENCE GUIDE

Assessment must confirm the ability to participate in a team or act individually to meet organisation requirements and be able to respond to requests and prioritise work schedule to meet organisational guidelines.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- communicate information about work activities and processes
- plan work activities
- interact with other team members
- demonstrate understanding of the roles and functions of team members
- provide feedback

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- principles of ethical work practice.
- roles and responsibilities of individual team members.
- general understanding of social and organisational systems when participating in teams.
- results orientated approaches when establishing one's own work schedule.
- organisational structure and Information Technology division structure so as to inform own and teamwork practices.
- general organisational strategic direction and values so as to inform own and teamwork practices.
- general work team processes and group dynamics

Skills
The ability to:

- make decision between a limited range of options
- display assertiveness
- employ questioning and active.
- perform general customer service
- implement time management for self management purposes
- display basic planning skills.
- use problem solving techniques
- exhibit literacy skills in relation to general workplace documentation.

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(4) Resource Implications

The following resources should be provided:

Work environment (simulated or actual enterprise

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Simulated activities must closely reflect the workplace.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

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ITICOR1341A: Interact with clients

Competency Descriptor: This unit deals with the skills and knowledge required toprovide routine client support in a professional manner, with exceptions being referred and applies to all individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Deliver support to clients	1.1	Communication is conducted with clients in a courteous and professional manner, according to organisational policy.
		1.2	Routine client support requirements are acted on, or referred to supervisor according to organisational policy.
		1.3	Client contact is maintained until problem is actioned.
2.	Respond to client complaints	2.1	A positive, helpful attitude to clients when handling complaints is conveyed.
		2.2	Complaints are handled sensitively, courteously and with discretion.
		2.3	Active listening and questioning is used to establish and confirm nature of complaint with client.
		2.4	Action to resolve client complaint to client satisfaction is taken wherever possible or promptly referred to supervisor.
3.	Convey information and ideas to people	3.1	Ideas and suggestions are expressed clearly to clients.
		3.2	Problems and concerns are relayed to the supervisor according to procedures and guidelines.
		3.3	Supervisor's recommendations are acted on in line with procedures and guidelines.

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RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to interacting with clients and applies to all individuals in the information and communication technology industry.

Clients may include but are not limited to:

- internal and external clients
- new and regular clients
- people from a range of social, cultural or ethnic backgrounds

Organisational policies/standards may include but are not limited to:

- client service standards
- complaints handling policy
- client liaison policy

Complaints encountered include:

- complaints about products and services
- complaints about staff conduct
- incorrect billing information

Client support requirements may include:

- providing information about products and services
- providing general information
- clarifying or resolving problems
- referrals to other departments
- arranging for technical support

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to provide routine client support in a professional manner, with exceptions being referred to appropriate areas as they occur, according to escalation procedures in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- communicate information about work activities and processes
- receive and convey information accurately
- resolve basic problems
- provide customer service
- demonstrate professionalism
- communicate effectively with clients
- record and document information

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(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- general principles of equal employment opportunities and anti-discrimination
- knowledge of the lines of communication to management
- current industry accepted hardware and software products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- knowledge of the available products and services
- knowledge of organisation quality assurance procedures
- principles of ethical work practices
- organisational policies in regard to external and internal client contact

Skills
The ability to:

- provide customer service
- handle difficult clients
- diffuse potentially situations
- communicate verbally and non-verbally appropriately to the work environment
- carry out questioning and active listening to clarify information
- display problem solving skills
- apply interpersonal skills
- refer problems to the appropriate personnel
- process oral and written communication

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- Workplace (actual or simulated)

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment mus t be in accordance with the performance criteria.

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(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess u nderpinning knowledge should support this.

Simulated activities must closely reflect the workplace.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NC TVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

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ITICOR0231A: Operate a personal computer

Competency Descriptor: This unit deals with the skills and knowledge required to operate a personal computer to enter data and to access information and applies to all individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Initiate computer system	1.1	Equipment and work environment are correctly checked for readiness to perform scheduled tasks.
		1.2	The hardware components of the computer and their functions are correctly identified.
		1.3	Equipment is powered up correctly.
		1.4	Access codes are correctly applied.
		1.5	System information is closely examined to accurately identify functions and features.
		1.6	Desktop configuration is customised in a manner suitable to meet individual requirements and/or special needs in accordance with organisation guidelines.
		1.7	Available help functions are used correctly when required.
2.	Use keyboard and equipment	2.1	Occupational Health and Safety regulations are followed for correct posture, lighting and length of time in front of computer.
		2.2	Keyboarding is carried out according to organisation guidelines on speed and accuracy.
3.	Navigate and manipulate desktop environment	3.1	The selection, opening and closing of the correct desktop icons to access features follow the correct and appropriate procedures.
		3.2	Different roles and parts of the desktop window are used correctly and appropriately for particular functions.
		3.3	The opening, resizing and closing of desktop windows for navigation purposes follow the correct procedures.
		3.4	Shortcuts are created from the desktop following the correct procedures.

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4.	Organise directory and folder structures	4.1	Directories/folders with subdirectories/subfolders are created and named according to established guidelines.
		4.2	Directory/folder attributes are accurately identified.
		4.3	Subdirectories/folders are moved between directories/folders following the correct and appropriate procedures.
		4.4	Directories/folders are renamed as required.
		4.5	Directories/folders and subdirectories/folders are correctly accessed via different paths.
5.	Organise files for user and/or organisational requirements	5.1	The most commonly used types of files are correctly accessed in a directory/folder.
		5.2	Groups of files are correctly selected, opened and renamed according to procedures as required.
		5.3	Files are correctly copied to disk.
		5.4	Deleted files are accurately restored as necessary.
		5.5	Software tools are correctly and appropriately used to locate files.
6.	Correctly shut down computer	6.1	All open applications are closed using correct procedures without loss of data.
		6.2	Computer is shut down correctly.

RANGE STATEMENT

This unit applies to activities associated with essential operations linked to using and maintaining basic computer equipment.

Input devices:

- keyboard
- mouse
- scanner
- microphone
- camera

Work environment:

- equipment
- furniture
- cabling
- power supply

File operations include:

- naming
- updating and archiving files and directories
- use of search, sort, print

Equipment:

- install supplied computer
- install supplied peripherals

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Software systems to include for:

- word processing
- spread sheet
- internet access

Files save on:

- network
- magnetic media
- personal PC

Data:

- textual
- numerical
- graphical

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to accurately carry out basic data entry and retrieval operations on a computer system in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- initiate the use of the equipment
- identify functions and features of software
- demonstrate the ability to customise desktop environment
- organise files, folders and directories
- manipulate input devices
- access and save files
- manipulate features and functions

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
knowledge of:

- safety for working with and around computers
- computer hardware and software systems
- procedure for initiating and closing down computer
- methods of locating files
- organisation's standards applicable to customising desktop environment and naming of files
- naming of files and folders
- functions of the different parts of the desktop window
- creating and saving files/folder/directories
- basic technical terminology in relation to reading help files and prompts
- log-in procedures for accessing a personal computer

Skills
The ability to:

- identify computer hardware
- manipulate data input devices
- access files
- use file operations
- manipulate features and tools
- customise desktop environment
- navigate desktop environment
- copy files

(4) Resource Implications

The following resources should be made available:

- files saved on network, magnetic media
- personal computer
- input devices: keyboard, mouse, other selection devices

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

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ITICOR0241A: Operate a word processing application (basic)

Competency Descriptor: This unit deals with the skills and knowledge required to operate a word processing application, perform basic operations to build a simple document and applies to all individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Create documents	1.1	Opening of documents and the addition of text and symbols are done according to information requirements.
		1.2	Paragraphs are added, selected, copied, deleted or moved within a document.
		1.3	Text is checked and amended in accordance with organisational and task requirement.
		1.4	Manuals, user documentation and on-line help are used to overcome problems with document production presentation.
		1.5	Document is saved to correct directory/folder.
2.	Customise basic settings to meet page layout conventions	2.1	Font type, size and colour are changed to enhance the appearance of the document.
		2.2	Alignment and justification options and line spacing are applied according to document formatting requirements.
		2.3	Margin sizes are modified to suit the purpose of the documents.
		2.4	Ability to view multiple documents at any one time is demonstrated.
3.	Format document	3.1	Italics, bold, underline and hyphenation are used as required and within organisational guidelines.
		3.2	Various tools are used correctly throughout the drafting of a document.
		3.3	Closing of documents and saving of documents to disk follows correct procedures.

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4.	Create tables	4.1	Basic table is inserted into a word processing document using the correct procedures.
		4.2	Cell attributes are appropriately customised to meet formatting and data requirements.
		4.3	Columns and rows are inserted and deleted as necessary.
		4.4	Borders and other formatting tools are appropriately used according to organisational style requirements.
5.	Add Images	5.1	Images and/or graphics are inserted in a word processing document and customised according to requirements.
		5.2	Images are positioned and resized to meet the word processing document formatting needs.
6.	Print word processing documents	6.1	Document is previewed in print preview mode.
		6.2	Correct print options are selected.
		6.3	Information is printed from installed printer.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to operating a personal computer and applies to all individuals in the information and communication industry.

Software may include but are not limited to:

- Microsoft Word
- Microsoft Works
- Corel WordPerfect

Equipment may include:

- personal computer
- printer

Software functions may include:

- text formatting
- page set-up
- line spacing
- paragraph formatting
- tabs
- spell check
- grammar check

Formatting may include:

- page orientation
- margins
- enhancements to text –colour, font, size
- enhancements to format – borders, patterns and colour
- alignment on page

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Printing may include:

- printer set-up
- printing multiple copies
- printing specified pages
- printing odd or even pages

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to complete basic operations associated with creating, formatting, saving and printing a document in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- create documents in line with organisation's guidelines
- customise settings
- format and layout document to specification
- insert images and tables
- use software features and tools appropriately
- apply printing procedures

(2) Pre-requisite Relationship of Units

- ITICOR0231A Operate a personal computer

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- basic technical terminology in relation to reading help files and prompts
- log-in procedures relating to accessing a PC
- types of software
- formatting styles
- use and functions of word processing software
- effect of formatting on readability and appearance of documents
- page layout conventions

Skills
The ability to:

- manipulate software features
- format documents
- create a range of documents
- add images and tables
- customise settings
- apply printing procedures

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(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- personal computer/network
- printer

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Simulated activities must closely reflect the workplace.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level -	
Use mathematical ideas and techniques	Level -	
Solve problems	Level 1	
Use technology	Level 1	

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ITICOR0471A: Access the Internet

Competency Descriptor:

This unit deals with the skill and knowledge required to access the Internet and applies to all individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify and use local resources	1.1	Installed Internet software applications are correctly identified and started up using the correct procedures.
		1.2	Appropriate Internet software is used off line or online following the correct operating procedures.
		1.3	Access is gained to desired site and files are downloaded.
		1.4	Downloaded files are scanned for viruses using installed software according to established guidelines.
		1.5	Guidelines and regulation are adhered to in the retrieval of information and files.
2.	Identify and use remote resources	2.1	Files and documents using the Internet search engines are accessed using the correct procedures.
		2.2	The Internet is browsed to find related sites via links according to procedures.
		2.3	Sending, downloading, reading and responding to e-mails follow organisational and operational procedures.
		2.4	Files attached to incoming e-mails are correctly retrieved and appropriately sent as attached files.

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RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to accessing the Internet and applies to all individuals in the information and communication industry.

Software may include but are not limited to:

- Microsoft Internet Explorer
- Netscape
- Lycos
- Google
- Yahoo

Anti-virus software may include:

- Norton
- McAfee

Policies and regulations may include issues related to but not limited to:

- encryption and privacy
- intellectual property rights
- pornography

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to access the Internet and obtain and send information as in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- identification of install internet software
- initiate use of software
- access and browse internet
- download and virus-scan files
- retrieve and send e-mails
- retrieve and send attachments

(2) Pre-requisite Relationship of Units

- ITICOR0231A Operate a personal computer

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- knowledge of how to initiate and conclude an Internet connection
- knowledge of appropriate uses of different Internet protocols and data types (WWW, email, etc)
- knowledge of privacy and security measures related to online tasks
- knowledge of information sources

Skills
The ability to:

- access the Internet and retrieve data using WWW and e-mail
- send a simple e-mail
- perform a simple search and save the text of a web page to disk
- extract and virus -scan downloaded files
- demonstrate an ability to find and use information relevant to the task from a variety of information sources

(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- personal computer/networked system

(5) Method of Asse ssment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team .

Competencies in this unit may be determined concurrently. Assessment must be in ac cordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinnin g knowledge should support this.

Simulated activities must closely reflect the workplace.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

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ITICOR0271A: Send and retrieve information via the Internet

Competency Descriptor: This unit deals with the skills and knowledge required to complete basic web search tasks and send and retrieve e-mails with attachments. This unit applies to individuals working in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Access the internet	1.1	Appropriate browser is opened and assigned a Home Page/Start Page through setting basic preferences.
		1.2	The display/view modes are appropriately adjusted to suit personal requirements according to operational guidelines.
		1.3	Toolbar is appropriately modified to meet user and browsing needs.
		1.4	Access is gained to desired site and data is retrieved in accordance with guidelines and regulations.
		1.5	Images are loaded or not loaded depending on modem speed, computer and browser capabilities.
		1.6	URL is opened to obtain data and browse links in accordance with established procedures.
2.	Search internet	2.1	Search engines are opened using the correct methods and search requirements are clearly defined.
		2.2	Usage of a range of search parameters (key words, logical operators) is demonstrated.
		2.3	Search results are saved and presented as a report according to the information required and operational guidelines.
		2.4	Bookmarks are created for required web page and saved in associated bookmark folder using correct procedures.
		2.5	Page set-up options are appropriately modified and the web page or the required information is printed according to approved guidelines and procedures.
		2.6	Established procedures are followed in shutting down and exiting browser.

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3.	Send and organise messages	3.1	Mail inbox is opened for a specific user and a new mail message created.
		3.2	Each field (address to, subject, etc) is completed and text is added to message according to organisational guidelines on e-mail usage and e-mail content.
		3.3	Auto signature is added and files are attached in the required format.
		3.4	Priority of message is determined, message is spell-checked, copied and text deleted and then sent.
		3.5	Received messages are replied to and forwarded as appropriate.
		3.6	Attachment is opened and saved to relevant directory/folder and a new folder is created if necessary.
		3.7	Messages are searched for and are marked or deleted as necessary.
		3.8	Messages are sorted (saved in folders/directories, archived, highlighted, etc) and unwanted messages are deleted.
4.	Create an address book	4.1	Mail addresses are added to address book and unnecessary addresses are deleted.
		4.2	Address book is updated with incoming mail addresses.
		4.3	An address list is created and mail sent out according to the list.
		4.4	Different folders are created for different categories of addresses.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to conducting basic web search tasks and sending and receiving e-mails with attachments and applies to individuals in the information and communication industry.

Equipment including:

- personal computer
- network system
- printer
- attached peripherals

Document may include but are not limited to:

- established files
- new document

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May include presentation applications contained in:

- Microsoft Office
- Lotus Suite
- Claris Works
- other similar applications

Policies and regulations may include issues related to but not limited to:

- encryption and privacy
- intellectual property rights
- pornography

Disks may include but not limited to:

- diskettes
- zip disks
- compact disks
- hard disk

Operating Systems:

- Command line
- Graphical User Interface

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to browse the internet, search for information, send and receive e-mails and organise the mail browser applications in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- customise settings
- accessing the internet
- assessing capability of the system to complete certain tasks
- communicate effectively via the internet
- observe protocols and security procedures
- demonstrate the ability to use relevant software applications
- create bookmarks and address book
- safe and effective operational use of all equipment

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- ITICOR0231A Operate a personal computer
- ITICOR0471A Access the Internet

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- make-up and structure of web addresses
- basic technical terminology in relation to reading help files and prompts
- log-in procedures relating to accessing a PC
- modem speed, traffic loads in relation to times of accessing the internet
- evaluating and assessing the authority of information
- organisational guidelines on internet and email usage, web etiquette
- security, viruses, privacy legislation, copyright
- different types of search engines
- different cultures
- the different types of messages that occur
- types of software

Skills
The ability to:

- access the Internet and retrieve data using WWW and e-mail
- send a simple email
- perform a simple search and save the text of a web page to disk
- extract and virus-scan downloaded files
- demonstrate an ability to find and use information relevant to the task from a variety of information sources
- read and write at a level where basic workplace documents are understood
- communicate clearly and precisely
- interpret user manuals and help functions
- exhibit cultural understanding

(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- personal computer/network
- internet access
- printer

To demonstrate this unit of competence the candidate will require access to documents detailing:

- organisational style guide/ policy
- organisational policies on internet and e-mail usage

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

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(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level -	
Use mathematical ideas and techniques	Level -	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET0151A: Maintain equipment and consumables

Competency Descriptor:

This unit deals with the knowledge and skills required to maintain the operations of basic hardware and the replacement of consumables. This unit applies to all individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Clean disc drives and peripherals	1.1	Disc cleaning materials are accessed from stores in line with organisational procedures.
		1.2	Inventory systems are accessed and events are documented according to organisational procedures.
		1.3	Discs/peripherals are cleaned as recommended by manual in accordance with vendor requirements and as required by organisation.
2	Replace and maintain consumables and supplies	2.1	Stock is accessed from store and information is recorded according to organisational procedures.
		2.2	Relevant manual is accessed according to guidelines and procedures.
		2.3	Consumables are replaced promptly and with minimum effect on other users.
		2.4	Hardware is tested to ensure it is in working order according to established procedures.
3	Maintain peripherals	3.1	Equipment requiring maintenance is determined accurately.
		3.2	Equipment is maintained as required by organisation guidelines.
		3.3	Maintenance is documented as required by organisation guidelines.
		3.4	Unused peripherals are stored in line with vendor/manuals' guidelines.

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RANGE STATEMENT

This unit applies to all individuals operating in the information and communication sector.

Hardware components may include but are not limited to:

- personal computers
- network systems
- personal organisers
- communication equipment

Peripherals may include but are not limited to:

- printers
- scanners
- tape cartridges
- multimedia kits
- speakers

Keyboard equipment may include but are not limited to:

- keyboard
- mouse
- touch pad
- pens

Consumables may include but are not limited to:

- diskettes
- ribbons
- printer
- toner
- paper,
- cartridges
- cleaners,
- tape

Organisation variables may include but are not limited to:

- security procedures
- logged calls procedures
- Occupational Health and Safety legislation
- preventive maintenance and diagnostic policy
- maintenance manuals
- in-house disposal policy
- vendor disposal policy
- contracting arrangements relating to information Technology purchasing

Replenishing of supplies procedures may include but are not limited to:

- requisition from organisation's store
- requisition from suppliers
- request to IT support unit

Cleaning materials may include but are not limited to:

- anti-static cleaner
- pressurized air duster
- lint-free cloth
- non-streaking screen cleaner

Cleaning equipment may include but are not limited to:

- vacuum
- voltage meter
- maintenance kit for laser printer
- brush

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EVIDENCE GUIDE

Competency is to be demonstrated by effectively maintaining the operations of basic hardware components and the replacement of consumables according to the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

Assessment must confirm the ability to maintain and replace at least the following equipment and consumables:

- replacing printer ribbons and laser cartridges
- cleaning mouses, monitors, disc drives and keyboards

(2) Pre-requisite Relationship of Units

- ITICOR0021A Apply Occupational Health and Safety procedures

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- basic principles and responsibilities of OH&S
- basic understanding of organisational systems, in relation to storage and retrieval of information and goods
- basic knowledge of current industry accepted hardware and software

Skills
The ability to:

- select materials appropriate to given task
- clean components and equipment
- detect faults
- develop and follow cleaning schedule
- work safely and accurately
- initiate preventive measures and respond to emergencies
- employ literacy skills in regard to basic workplace documentation

(4) Resource Implications

Competency can be demonstrated in a simulated environment on typical workplace equipment and consumables.

The following resources should be provided:

- necessary cleaning supplies, equipment and tools
- safety supplies including gloves and dust masks where required

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(5) Method of Assessment

Competence in this unit needs to be assessed using formative assessment to ensure consistency of performance in a range of contexts.

Evidence should include a demonstrated understanding of the importance of maintaining the cleanliness and operational efficiency of components. The ability to safely and proficiently carry out maintenance task within appropriate timeframes should be displayed.

Peers and supervisors must be available for obtaining information on the extent and quality of the contribution made.

(6) Context of Assessment

Work is carried out under direct supervision or limited or no supervision.

This unit maybe assessed on or off-the job. Assessment should include practical demonstration either on-the job or in a simulated workplace environment where cleaning and maintenance can be demonstrated. This should be supported by assessment of underpinning knowledge.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

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MEMCOR0161A: Plan to undertake a routine task

Competency Descriptor: This unit deals with the skills and knowledge required to effectively plan to undertake a routine task and applies to all individuals working in the metal, engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify task requirements	1.1	Instructions as to procedures are obtained, understood and where necessary clarified.
		1.2	Relevant specifications for task outcomes are obtained, understood and where necessary clarified.
		1.3	Task outcomes are identified.
		1.4	Task requirements such as completion time and quality measures are identified.
2.	Plan steps required to complete task	2.1	Based on instructions and specifications provided, the individual steps or activities required to undertake the task are understood and where necessary clarified.
		2.2	Sequence of activities required to be completed is identified in plan.
		2.3	Planned steps and outcome are checked to ensure conformity with instructions and relevant specifications.
3.	Review plan	3.1	Outcomes are identified and compared with (planned) objectives, task instructions, specifications and task requirements.
		3.2	If necessary, plan is revised to better meet objectives and task requirements.

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RANGE STATEMENT

This unit applies to the activities related to planning to undertake a routine task. The task and associated planning activity are carried out under supervision. The plan may or may not be documented. The task involves one or more steps or functions carried out routinely on a regular basis. The planning activity does not require the exercise of judgement as to priorities or time limitations, it requires that precise information provided in the instructions be accurately followed, steps in the process be completed in the appropriate sequence and that the time limits specified are met.

Instructions may include but not limited to:

- standard operation sheets
- clear specifications and requirements
- quality and time allowances
- standard operating procedures

EVIDENCE GUIDE

Competency is to be demonstrated by the effective use of planning activities relating to instructions, information sources and meeting procedures listed within the range statement relative to the work orientation

(1) Critical Aspects of Evidence

This unit should be assessed in conjunction with other specialisation or core units and not in isolation. The assessment should be linked with performance of normal workplace activities where the competency covered by this unit is demonstrated concurrently with other core or elective competencies. The assessment of this competency may be associated with the assessment of core or elective units that require planning for undertaking a routine task in the individual's field of work.

During assessment the individual will:

- demonstrate safe working practices at all times
- demonstrate the ability to plan to undertake a routine task
- communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
- take responsibility for the quality of their own work
- perform all tasks in accordance with standard operating procedures
- perform all tasks to specification
- use accepted engineering techniques, practices, processes and workplace procedures.

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities

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(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- basic level of ability in speaking
- basic level in reading
- basic level in writing English
- basic numeracy
- task requirements
- work place operating procedures
- the use of work schedules, charts, work bulletins and memos

Skills
The ability to:

- work safely to instructions
- convey information in simple English to invoke correct actions
- apply quality procedures
- read and interpret simple drawings, and specifications
- plan a routine task
- undertake a routine task

Basic numeracy means the ability to perform simple arithmetic using whole numbers applying the four basic rules of addition, subtraction, multiplication and division. The unit however does not refer to competence in English but in communication. English language ability should be professionally assessed

(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required.
- any relevant workplace procedures.
- any relevant product and manufacturing specifications.
- any relevant codes, standards, manuals and reference materials.

(5) Method of Assessment

The candidate will be required to:

- answer questions put by the assessor.
- identify colleagues who can be approached for the collection of competency evidence where appropriate.
- present evidence of credit for any off-job training related to this unit.

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge.

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge.

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(6) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. The communication Activities undertaken should be consistent with the individual's field of work and be based on Interaction with others related to workplace tasks and procedures, tools, equipment, materials and Documentation relevant to that field of work. The competencies covered by this unit would be Demonstrated by an individual working alone or as part of a team. Assessment should be Conducted in an environment that the individual is familiar with.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

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ITICOR0091A: Provide quality service to customers

Competency Descriptor: This unit deals with the skills and knowledge required to identify and satisfy customer needs and expectations in a positive and professional manner.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Identify customer needs	1.1 Appropriate interpersonal skills are employed to ensure that customers' needs are accurately identified.
	1.2 Customer requests are discussed in an articulate, easy to understand manner and all requests are responded to promptly and accurately within policy and procedures.
	1.3 Customers' needs are assessed for urgency so that priorities for service delivery can be identified.
	1.4 Customers are provided with information about available options for meeting their needs and assisted to identify their preferred option.
	1.5 Enterprise products and services are promoted to meet the customer request within policy and procedures.
	1.6 Relevant documentation are completed in accordance with enterprise policies and procedures.
	1.7 Personal limitations in addressing customer needs are identified and where appropriate, assistance is sought from designated person.
2. Communicate with the customer	2.1 Communication is conducted with customers and colleagues in a polite, professional and friendly manner.
	2.2 Language and tone appropriate to a given situation are used in both written and spoken communication.
	2.3 Appropriate non-verbal communication is used in all situations.
	2.4 Non-verbal communication of colleagues and customers are observed and taken into consideration in the communication process.

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		2.5	Sensitivity is shown to cultural and social differences when communicating with others.
		2.6	Active listening and questioning are used to facilitate effective two-way communication.
		2.7	Identify potential and existing conflicts and seek solutions in conjunction with parties involved.
3.	Establish a relationship with the customer	3.1	Confirm customer identity and details with customer records if appropriate.
		3.2	Establish a rapport using active listening and empathy techniques.
4.	Maintain personal presentation standards	4.1	Appropriate dress, grooming and behaviour are observed in the workplace.
		4.2	Personal presentation takes account of workplace environment and impact on different kinds of customer.
5.	Deliver quality service to customers	5.1	Prompt customer service is provided to meet identified needs in accordance with legislative and organisational requirements.
		5.2	Appropriate rapport is established with customers to enable high-quality service delivery.
		5.3	All reasonable needs and requests of customers are met within organizational guidelines and timeframes.
		5.4	Service is provided to customers respectfully and with sensitivity where cultural differences and special needs exist.
		5.5	Customers' complaints are handled sensitively and courteously in accordance with organisational requirements.
		5.6	Opportunities to enhance the quality of service and products are identified and taken whenever possible.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to providing quality service to customers

Customers include but not limited to:

- user
- purchaser or beneficiary of a service, product or process
- internal or external clients
- colleagues
- visitors

Interpersonal skills may include:

- using appropriate body language
- summarizing and paraphrasing to check understanding of customer's message
- providing an opportunity for the customer to confirm his/her request
- seeking feedback from the customer to confirm understanding of needs
- questioning to clarify and confirm the customer's needs
- listening actively to what the customer is communicating

Personal presentation may include:

- personal appearance
- correct posture
- use appropriate language and tone
- demeanour
- personality

Delivery quality service may include:

- building rapport
- keeping promises
- keeping the customer informed
- doing it right the first time
- owning the customer's request
- responding to the customer's request with operational efficiency

Active listening involves but not limited to:

- giving your full attention to the persons who are speaking
- responding in a way that lets them know you have listened
- understood their message as they have intended

Customer needs may relate to:

- advice or general information
- specific information
- further information
- making an appointment
- complaints
- purchasing the enterprise's products and services
- returning organisation's products

Grooming to include:

- the use of hygiene aids
- properly laundered garments
- clean shoes
- the range of fashions and hairstyles accepted as appropriate for the workplace

Workplace procedures may relate to:

- safety
- process-specific procedures
- use of materials
- recycling
- cost control
- reporting

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Behaviour which contributes to a safe work environment may include:

- discussing and negotiating problems and tasks with other team members
- sharing knowledge and skills
- identifying and reporting any risks or hazards
- using business equipment according to instructions

Legislative requirements may include:

- confidentiality and privacy
- anti-discrimination
- licensing requirements
- fair trade
- adherence to mandatory service and process standards
- Occupational Health and Safety requirements
- environmental regulations

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to provide quality customer service in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of enterprise products and service
- demonstrate knowledge of and adherence to enterprise standards, policies and procedures
- use of appropriate language, tone and phrases in dealing with customers and giving due consideration for special needs and cultural and social differences
- demonstrate clear and concise communication with the customer including use of active listening and questioning techniques
- referral of inquiry in a prompt and efficient manner
- provide various options to the customer when more than one option can satisfy customer need
- deliver service in accordance with enterprise policy and procedures
- projection of a professional image in representing the enterprise

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- the enterprise's business structure, products and services
- strategies for excellent customer service
- the organisation's policies and procedures for customer service including handling customer complaints
- customer feedback mechanisms and
- their special needs teamwork

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Knowledge
Knowledge of: (Cont'd)

- enterprise policies, procedures and guidelines
- enterprise culture and values
- enterprise business goals and standards
- business operations and processes
- legislative requirements

Skills
The ability to:

- access and use workplace information
- utilise skills to identify customer needs
- deal with customer enquiries or complaints (problem solving skills)
- relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities
- articulate enterprise products and services
- employ questioning and active listening skills to clarify information
- apply customer service skills to satisfy customer requirements and satisfaction
- apply customer service skills to satisfy customer satisfaction
- read and interpret information

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- information on enterprise products and services
- enterprise policies and procedures
- relevant legislations

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET3032A: Install and terminate wiring systems

Competency Descriptor: This unit deals with the skills and knowledge required to terminate and install wiring systems and applies to individuals involve in installation and maintenance activities.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare for installation and termination of cables	1.1 Installation requirements are accurately identified and are confirmed with the appropriate personnel.
	1.2 A plan of work activities is developed and discussed/confirmed with the relevant authority.
	1.3 All resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications.
	1.4 Correct cables and materials are selected in accordance with job requirements.
	1.5 Relevant plans and drawings are selected and accurately interpreted in accordance with the work requirements.
	1.6 Work area is prepared in accordance with work requirements and enterprise procedures.
	1.7 Potential hazards and obstructions are identified and appropriate actions are taken in accordance with established procedures.
	1.8 Users and other involved parties are notified of isolation or shut down requirements and agreement is reached on time and duration of disruption.
	1.9 It is ensured that all tasks to be finished in preparation for installation work are completed and incomplete work is reported to the relevant authority.
	1.10 Work is planned in detail including sequencing of activities and prioritising so that work is completed efficiently and with minimal disruption to users.

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2.	Install cables	2.1	Installations are made to specifications, manufacturer requirements and to standard and regulatory requirements.
		2.2	All cables are installed to work specifications.
		2.3	All cables, wires, conductors and installations are marked/tagged and labelled to specification.
		2.4	All joints are made following the correct procedures.
		2.5	All completed installations are tested for compliance with specifications.
		2.6	Equipment and wiring are installed in a manner that does not reduce the type of protection afforded by the equipment design.
3.	Connect and terminate cables	3.1	Terminations/connections are made to specifications, manufacturers' requirements and to regulatory and standard requirements.
		3.2	All brackets, clamps and holders are adjusted and fixed to specifications.
		3.3	All cables, wires, conductors and connections are marked/tagged and labelled to specification.
		3.4	All completed wiring and connections are tested for compliance with specifications.
4.	Complete the work	4.1	Work is completed and appropriate personnel notified in accordance with enterprise requirements.
		4.2	Work area is cleared of waste, cleaned, restored in accordance with enterprise requirements.
		4.3	All wastes are disposed of in accordance with environmental safety guidelines.
		4.4	Tools and equipment are maintained and stored in accordance with manufacturers' specifications and enterprise guidelines.
		4.5	The required testing and checks are conducted to ensure that work is carried out to specifications and the necessary corrective measures are taken where problems exist.

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5.	Prepare installation documentation	5.1 It is confirmed with the appropriate personnel that installation meets requirements and the established signing off/handing over procedures are correctly followed.
		5.2 Reports of installation activities are accurately completed and filed in accordance with enterprise procedures and guidelines.
		5.3 Relevant sign off/hand over documentation is completed accurately, legibly and concisely and accurate updates are made as required.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing and terminating wiring systems.

Cables may include:

- fiber optics
- shielded twisted pair
- unshielded twisted pair
- coaxial cable
- sheathed cables

Wiring systems may include:

- electrical systems
- voice communication systems
- control systems
- data communication systems
- voice and data

Preparatory work may include:

- installation of conduits
- installation of cable trays
- preparation of surfaces
- removal of hazards
- isolation from power supply
- securing of work area

Tools and equipment to include:

- combination pliers
- long nose pliers
- side cutting pliers
- solder irons
- crimping tools
- cable testers

Termination and connection includes the utilisation of a range of methods including:

- clamping
- pin connection
- soldered joints
- crimping
- plugs sockets
- clamping of cables and wires

Types of joint may include:

- twist joints
- straight twist joints
- tee twist joints
- tee joints
- married joints
- straining point joints
- mechanical joints

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Installation may include but not limited to:

- surface mount
- flush mount
- in PVC conduits
- in metal conduits
- using mechanical connectors

Testing may include:

- continuity checks
- resistance checks

Standards and procedures may include:

- industry best practices
- Occupational Health and Safety requirements
- legislative requirements
- statutory regulations
- enterprise guidelines and procedures
- quality assurance requirements
- industry standards

Relent personnel may include:

- supervisor
- system administrator
- network engineer
- network administrator
- managers

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install and terminate wiring systems in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of wiring systems and installation/termination procedures
- demonstrate the ability to select and use appropriate tools and equipment
- demonstrate the ability to terminate and connect cables
- communicate information about tasks being undertaken to ensure a safe and efficient working environment
- take responsibility for the quality of their own work
- perform all tasks in accordance with standard operating procedures
- perform all related tasks to specifications
- use accepted installation and termination techniques, practices, processes and workplace procedures
- demonstrate safe working practices at all times

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- types of cables
- safety and work procedures
- industry and regulatory standards
- installation tools and equipment
- materials used in installation
- connection of cables
- bonding methods
- types of joints
- termination and connection methods
- installation methods
- testing methods
- Occupational Health and Safety requirements

Skills
The ability to:

- work safely to instructions
- select and use appropriate tools and equipment
- install cables to specification
- handle materials
- select material and supplies
- join cables
- terminate cables
- conduct testing on wiring system

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant cables, materials, tools and equipment
- enterprise and industry requirements and standards and codes
- relevant documents and manuals

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITICSS3171A: Perform housekeeping duties

Competency Descriptor: This unit deals with the skills and knowledge required to effectively perform housekeeping duties and maintain safe and organised working environment.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify housekeeping requirements	1.1	Workplace procedures for safety and housekeeping requirements are accurately identified.
		1.2	Workplace safety and housekeeping standards are explained and understood.
		1.3	Housekeeping inspection is undertaken in accordance with procedures/work instructions.
		1.4	Housekeeping activities are appropriately scheduled in accordance with enterprise policies and procedures.
2.	Organise work area	2.1	Work area and work environment are maintained in a safe, uncluttered and organised manner in accordance with Occupational Health and Safety requirements and enterprise policies and procedures.
		2.2	All routines carried out safely, effectively and efficiently with minimum inconvenience to customers and staff in accordance with enterprise policies and procedures.
		2.3	Enterprise policies and procedures for tidying of work area, and surrounds and placing items in designated areas are applied.
		2.4	Designated work areas are kept clear of obstructions.
		2.5	Work materials, tools and equipment are safely kept in designated areas.
3.	Clean work area	3.1	Enterprise policies and procedures for personal hygiene are applied.
		3.2	Workplace policies and procedures for cleaning of personal work area and work sites are applied.
		3.3	Waste is promptly removed and disposed of according to enterprise and safety policies and procedures.
		3.4	Spills, waste or other potential hazards are removed from floors according to enterprise policies and procedures.

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		3.5	Signage is promptly displayed in regard to unsafe areas in accordance with enterprise policies and procedures.
		3.6	Tools, equipment and consumable materials are maintained and stored correctly after use.
		3.7	Tools and equipment (including guards) are cleaned and used in accordance with manufacturer's instructions and enterprise policies and procedures.
		3.8	It is ensured that appropriate personal protective wear and equipment is used as required.
4.	Dispose of waste material	4.1	Waste materials are correctly identified and disposed of in accordance with manufacturer's instructions and health and safety requirements.
		4.2	Waste materials are disposed of in the correct locations in accordance with enterprise policies and procedures.
5.	Contribute to controlling hazards	5.1	Health and safety hazards in the work area are accurately identified and risks arising from hazards are determined.
		5.2	Appropriate action is taken to control risks in accordance with workplace procedures and duty of care.
		5.3	Chemicals and solvents are handled and used following workplace procedures and manufacturer's instructions.
		5.4	Handling characteristics of components and materials are identified and appropriate handling techniques are applied.
		5.5	Materials and components are stored, stacked and protected against damage in accordance with enterprise policies and procedures and manufacturer's instructions.
6.	Perform reporting and documentation activities	6.1	Breaches to housekeeping requirements are identified and reported in accordance with enterprise policies and procedures.
		6.2	Appropriate documentation is completed in accordance with enterprise policies and procedures.
		6.3	Documentation is maintained and filed in accordance with enterprise policies and procedures.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to performing housekeeping duties.

Housekeeping requirements may include:

- work area organization
- appropriate storage
- consistent adherence to clean up requirements
- adequate cleaning and maintenance
- safe hazardous material handling
- safe waste disposal

Personal protective wear and equipment may include:

- protective clothing
- footwear
- earmuff/plugs
- safety glasses/goggles
- gloves
- dust masks
- respirators

Occupational health and safety policies and procedures may include:

- personal protective wear and equipment is used in accordance with workplace procedures
- safe materials handling practices are correctly followed
- rest breaks are taken in accordance with occupational health and safety including ergonomic requirements
- marked walkways are followed in workplace
- equipment is stored when not in use
- workstation is kept clean and free of obstacles at all times
- floor and workstation are kept clear of discarded components, waste, dust and rubbish

Housekeeping activities may include:

- cleaning work area
- disposal of waste
- removal of obstacles
- erecting signs and notices
- securing equipment and cables
- handling and storing materials and equipment
- dealing with spills

Work place hazards may include:

- flammable materials
- unsecured cables
- exposed power cables
- chemicals
- slippery floor
- unprotected equipment
- cluttered walkways
- improperly stacked materials

Workplace procedures may relate to:

- safety
- process-specific procedures
- use of materials
- recycling
- cost control
- reporting

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Tools and equipment used in housekeeping activities includes but is not limited to:

- brooms
- hoses
- wet and dry vacuum cleaners
- mops
- maintenance tools

Materials used in housekeeping activities may include:

- solvents
- chemicals
- consumables
- cleaning agents
- items used in securing cables and equipment

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to perform housekeeping duties in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of housekeeping requirements, standards and procedures
- schedule housekeeping activities and carry out required inspections
- clean, prepare and organise work area
- controlling hazards in the work place and safe disposal of waste
- apply safe practices throughout housekeeping operations including the handling of chemicals and spills
- operate equipment and utilise materials for performing routine housekeeping duties
- maintain and store housekeeping equipment and materials
- demonstrate adherence to relevant documentation and reporting procedures
- demonstrate compliance with Occupational Health and Safety regulations and industry standards applicable to workplace operations
- compliance with organisational policies and procedures including quality assurance requirements
- interactively communicate with others to ensure safe and effective operations

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- the scope and importance of housekeeping in terms of safety, efficiency and customer relations
- waste disposal policy and procedures
- the risks associated with housekeeping including hazardous chemicals and potential hazards
- the focus of housekeeping and the methods of dealing with each main situation
- enterprise housekeeping policy and procedures, equipment, material and personal safety and hygiene requirements
- enterprise policies and procedures
- industry standards and codes of practice
- tools and equipment used in housekeeping operations
- materials used in housekeeping operations
- relevant legislative requirements
- Occupational Health and Safety requirements
- safety and emergency signage and notices
- materials handling
- quality assurance requirements
- range of communication techniques (verbal and non-verbal)

Skills
The ability to:

- work safely to instructions
- use tools and material
- handle and store materials safely
- communicate effectively
- dispose of material safely
- read and interpret specifications and technical operations
- locate, interpret and apply relevant operational, safety and housekeeping information
- clean and maintain safe work environment
- identify workplace hazards
- carry out documentation and reporting
- deal with spills and hazardous chemicals

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- realistic housekeeping requirements and instructions on housekeeping
- hazardous chemicals information and environmental disposal instructions
- appropriate materials, tools and equipment
- enterprise policies and procedures
- relevant legislative and Occupational Health and Safety requirements
- industry standards and codes of practice

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET3061A: Use and maintain hand and power tools

Competency Descriptor: This unit deals with skills and knowledge required to select, use and maintain appropriate hand and power tools in the completion of work activities.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Identify hand and power tools	1.1	Work operations requiring the use of hand and power tools are recognised.
	1.2	Types of hand and power tools and their functions are identified.
	1.3	Sources of and access to power supply are recognised.
2. Select hand tools	2.1	Occupational Health and Safety requirements for using hand tools are recognised and adhered to during work operations.
	2.2	Appropriate personal protective equipment are selected, correctly fitted and used.
	2.3	Hand tools are selected consistent with needs of the job.
	2.4	Tools checked for serviceability and safety and any faults are reported to appropriate personnel.
	2.5	Equipment are selected to hold or support material for hand tools application where applicable.
3. Use hand tools	3.1	Hand tools are used to produce desired outcomes to job specifications.
	3.2	Material is located and held in position for hand tool application.
	3.3	Workplace health and safety requirements, including personal protection needs, are observed throughout the work.
	3.4	All damages and faults arising from immediate use are repaired within own are of responsibility or are marked for repair according to designated procedures.

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		3.5	Hand tools are cleaned and stored safely in appropriate location according to enterprise guidelines and manufacturer's recommendations.
		3.6	Work area is cleaned, all waste is removed and properly disposed of.
4.	Select power tools	4.1	Occupational Health and Safety (OH&S) requirements for using power tools recognised and adhered to.
		4.2	Appropriate personal protective equipment selected, correctly fitted and used.
		4.3	Power tools and leads/hoses are selected consistent with needs of job in accordance with conventional work practice.
		4.4	Power tools and leads/hoses visually checked for serviceability/safety in accordance with OH&S requirements and any faults are reported to the appropriate personnel.
		4.5	Equipment are selected to hold or support materials for power tool application where applicable.
5.	Establish power/air supply to work location	5.1	Route is identified for safe placement of leads/hoses and is cleared of all hazards.
		5.2	Electric power leads is run out to power supply and is supported overhead to be clear of traffic or is covered if presenting possible trip hazard.
		5.3	Electric power leads are connected to supply and power board or directly to power tool.
		5.4	Air hoses are run out to compressed air supply and are covered if presenting possible trip hazard.
		5.5	Hoses are connected to power tool and air supply in accordance with manufacturer's specifications.
6.	Use power tools	6.1	Power tools are used following a determined sequence of operations to produce desired outcomes.
		6.2	Workplace health and safety requirements, including personal protection needs, are observed throughout the work.
		6.3	Unsafe or faulty tools are identified and marked for repair according to established procedures.

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	6.4	Power tools are cleaned and stored safely in appropriate location according to standard workshop procedure and manufacturer's recommendations.
	6.5	Work area is cleaned; all waste is removed and properly disposed of.
7. Maintain hand and power tools	7.1	Maintenance procedures are identified.
	7.2	Routine maintenance of hand and power tools is performed in accordance with enterprise guidelines and manufacturers' specifications.
	7.3	Repair needs are documented and reported to the appropriate personnel.
	7.4	Hand and power tools are safely stored under the conditions recommended by the manufacturers.
	7.5	Documentation is completed in accordance with enterprise procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to using and maintaining hand and power tools.

Hand tools include, but are not limited to:

- wire strippers
- chisels
- hacksaws
- handsaws
- hammers
- measuring tapes
- pliers
- sealant gun
- spirit level, straight edge
- screwdrivers

Power tools include:

- drills
- nail guns
- staplers
- screwdrivers
- sanders
- circular saw

Maintenance may include:

- cleaning
- sharpening
- lubricating
- repairing

Power supply to include but not limited to:

- electricity
- compressed air

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Personal protective equipment may include:

- overalls
- boots
- hard hat/cap
- safety glasses/goggles
- gloves
- ear plugs/muffs
- face masks/respirators

Occupational Health and Safety requirements may include:

- workshop/worksite safe working practices
- use of tools and equipment
- use of power tools
- safe handling and storage of materials

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to use and maintain hand and power tools in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to and during use of hand tools and power tools
- demonstrate safe and effective operational use of tools and equipment
- interactively communicate with others to ensure safe and effective operations

(2) Pre-requisite Relationship of Units

Pre-requisite for this unit is

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
knowledge of:

- workplace and equipment safety requirements
- portable power tools
- hand tools and equipment
- materials
- materials handling whilst operating tools
- work shop procedures
- maintenance procedures
- storage procedures
- Occupational Health and Safety requirements

Skills
The ability to:

- work safely to instructions
- apply appropriate hand-eye co-ordination in the use of tools
- handle/hold materials during operation of tools
- select appropriate tools for material usage
- communicate effectively
- interpret safety requirements
- maintain tools
- store tools correctly

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- personal protective equipment
- safety and maintenance procedures
- hand and power tools

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT1082A: Operate a word processing application (advance)

Competency Descriptor:

This unit deals with the skills and knowledge required to operate a word processing application and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Insert, format and protect form elements	1.1	A rough sketch of the form to be created is drawn on a paper.
		1.2	The form fields required to gather information are determined.
		1.3	The desktop environment is customized to include forms toolbar.
		1.4	Form fields are inserted and their properties set.
		1.5	Form fields are checked to conform that they are long enough to handle input from the user.
		1.6	The form fields are formatted and styled as required.
		1.7	Forms and fields are protected/unprotected.
2.	Create tables for forms	2.1	Tables are created for alignment of fields or to control row height.
		2.2	Form fields are placed in table cells.
		2.3	Table cells are formatted as required.
3.	Create and work with a long document	3.1	A general outline is decided and work is divided into sections or chapters with headings and sub-headings.
		3.2	Templates are created and styles applied on headings to consider how the final version will be bound.
		3.3	Document maps are used to move quickly around the document.

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		3.4 Sections are created in documents when certain parts of the documents are required to be formatted differently from the other parts of the document.
		3.5 Different headers and footers are added to different pages within the document as required.
		3.6 Table of contents are applied as required.
4.	Create macros and run macros	4.1 Macros are recorded as required.
		4.2 Macros are run and edited as required.
		4.3 Macros are added to the toolbar.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to advance operations of a word processing application and applies to all individuals in the information and communication industry.

Software may include but are not limited to:

- Microsoft Word
- Microsoft Works
- Corel WordPerfect

Equipment may include:

- personal computer
- printer

Formatting may include:

- page orientation
- margins
- enhancements to text –colour, font, size
- enhancements to format – borders, patterns and colour
- alignment on page

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to complete basic operations associated with creating and formatting forms, long documents and macros in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- create documents in line with organisation's guidelines
- customise settings
- format and layout document to specification
- insert form elements
- use software features and tools appropriately
- create and run macros

(2) Pre-requisite Relationship of Units

ITICOR0231A Operate a personal computer

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- operating systems software and software tools
- applications and their features
- form fields and their properties
- use of document maps
- macros and templates

Skills
The ability to:

- create form elements
- customise settings
- create tables and templates
- work with long documents
- format and style documents

(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- personal computer/network
- printer

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(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Simulated activities must closely reflect the workplace.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level -	
Use mathematical ideas and techniques	Level -	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET3122A: Prepare and present technical reports

Competency Descriptor: This unit deals with the skills and knowledge required to gather information, prepare and present technical reports on work activities and solutions.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Research information	1.1	Topic of the report is identified and described.
		1.2	Sources of information and data are determined.
		1.3	Information and data appropriate to the task is collected and organised according to enterprise standards.
2.	Evaluate information	2.1	Information collected is relevant and sufficient to provide a full report.
		2.2	Clarification and assistance is sought where information is unclear or difficult to understand.
		2.3	Additional information is obtained where available information is inadequate.
		2.4	Information is assessed for its validity and reliability and is organised into a suitable form to aid decision-making.
		2.5	Conclusions drawn from relevant information are based on reasoned argument and appropriate evidence.
3.	Produce document	3.1	Language is applicable to the task and audience.
		3.2	The document is organised logically, is structured and balanced according to purpose, audience and context.
		3.3	The document is formatted and presented according to industry and enterprise standards.
		3.4	Conclusions reached reflect the stated objectives of the report.
		3.5	Preparation is completed within the specified timeframe.
		3.6	Enterprise and Occupational Health and Safety requirements and procedures are followed.

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4.	Deliver an oral presentation	4.1 Language is applicable to the task and audience.
		4.2 Presentation is organised logically, is structured and balanced according to purpose, audience and context.
		4.3 Concise and well presented support materials are used in oral presentations to reflect industry standards.
		4.4 Efficient time use allows clear presentation of the desired topic.
		4.5 Oral presentation is delivered within a specified time.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to preparing and presenting technical reports.

Sources of information/data may include:

- work activities
- research materials
- published books
- academic reports
- industry reports
- colleagues
- internet
- newspapers, journals, industry publications
- industry specialists and experts

Information/data may include:

- test data
- installation activities
- troubleshooting procedures
- information technology solutions
- maintenance procedures

Format of report may include:

- paper-based reports
- graphical
- electronic
- powerpoint presentations
- spreadsheets

Support materials may include:

- charts
- graphs
- models
- slides
- handouts

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to prepare and present technical reports in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of preparing and structuring technical reports encompassing a range of information
- demonstrate writing skills which reflects standards practices of the English Language
- source and access the relevant information and deliver it in the required format
- consultatively evaluate information and ensure that the information will accomplish its intended purpose
- demonstrate the ability to produce and present technical reports in the appropriate timeframe and to specifications
- comply with industry and enterprise procedures and guidelines

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- report writing
- enterprise guidelines
- industry practices
- relevant sources of information for technical information
- communication techniques
- industry terminology
- Occupational Health and Safety requirements
- grammar
- mechanics
- spelling and pronunciations
- interactive communication
- preparing presentations
- relevant support materials and their preparation

Skills
The ability to:

- source and access information
- identify topics of report and the corresponding body of information
- evaluate information
- produce reports to specifications
- deliver oral presentations
- use appropriate language and support material
- communicate effectively
- use relevant tools and equipment
- display appropriate body language
- follow procedures and guidelines

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant sources of information and enterprise guidelines
- relevant tools and equipment

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2901A: Perform measurements and calculations

Competency Descriptor:

This unit deals with the skills and knowledge required to perform computations and effectively carry out measurements of work to required tolerance.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Estimate approximate quantities	1.1 Quantities of materials and resources required to complete a work task are estimated.
	1.2 Measurements or quantities are estimated (approximately) on worksite or from job instructions.
	1.3 The time needed to complete a work activity is estimated.
	1.4 Accurate estimates for work completion are made.
	1.5 Costs for materials and projects are estimated to be within a reasonable range of the actual costing.
2. Select measuring equipment and calculation method	2.1 Units of measurement for quantities and linear measurement and the related measuring equipment are identified.
	2.2 Measuring equipment and units of measurement appropriate for the task are selected.
	2.3 Dimensions to be measured are identified from specifications and work procedures.
	2.4 Appropriate equipment features and/or scales are selected for the required process.
	2.5 Mathematical process required to complete the task is selected.
3. Obtain measurements	3.1 Appropriate measurement tools are selected.
	3.2 Accurate measurements are obtained to job instruction using the appropriate measuring devices and instruments.
	3.3 Instruments are read to the limit of accuracy of the tool.

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		3.4	Measurements are correctly identified/recorded without error.
		3.5	Quantities of materials suitable for work undertaken are calculated and recorded to job instructions.
		3.6	Quality Assurance requirements associated with enterprise operations are recognised and adhered to.
4.	Perform calculations	4.1	Calculations needed to complete work tasks are performed using the four basic processes of addition, subtraction, multiplication and division.
		4.2	Calculations involving fractions, percentages and mixed numbers are used to complete workplace tasks.
		4.3	Knowledge of the mathematical relationships between various quantities is demonstrated.
		4.4	Calculations are performed accurately using established formulae and the results are applied to work activities.
		4.5	Statistical calculations are performed using given data.
		4.6	Calculations involving geometry, algebra and calculus are performed correctly where required.
		4.7	The functions of a calculator are used to perform workplace tasks.
		4.8	Numerical information is self-checked and corrected for accuracy.
5.	Interpret charts and graphs	5.1	Information extracted from charts and graphs are correctly interpreted.
		5.2	Information extracted from charts and graphs are applied in the decision making process.
		5.3	Information presented in mathematical symbols, diagrams and pictorial representations is recognised, interpreted and used to complete workplace tasks.
6.	Produces charts and graphs from given information	6.1	The concept of representing information using graphs and charts are understood and information given is examined to determine the most appropriate chart/graph to represent the information.
		6.2	Charts and graphs are produced from given information.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to performing measurements and calculations.

Calculation may include:

- area
- perimeter
- power
- mass
- voltages
- ratios (ingredients/elements and triangulation)
- proportion
- resistance

Measuring devices and instruments may include:

- rule
- tape and/or square
- multimeter
- ohmmeter
- voltmeter
- testing tools

Job instruction may involve:

- verbal direction/instruction
- written instruction
- provision of job drawing and detail

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to perform measurements and calculations in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- communicate effectively to enable accurate calculations and measurements
- demonstrate effective use of measuring devices
- accurate measurements taken and recorded
- perform calculations to specifications
- estimate quantities and costs to requirements
- interpret and produce charts and graphs
- select appropriate mathematical process
- select appropriate mechanical and electronic aids including calculators and computers
- locate, interpret and apply relevant information
- maintain workplace records

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- drawings and specifications
- materials relevant to the work process
- mathematical operations in geometry, measurement and calculations
- costing relevant to the work activity
- charts and graphs
- units of measurements
- relationship between quantities
- measuring devices and equipment
- application of mathematical procedures including addition, subtraction, multiplication, division, percentages and fractions
- metric and where required, imperial measurement systems
- use dial, scale and digital readouts
- calculating devices
- statistical calculation

Skills
The ability to:

- read and interpret drawings/instructions
- measure and calculate manually
- record measurements
- operate electronic calculating devices
- produce and interpret charts and graphs
- communicate effectively
- manipulate formulae
- use measuring devices and equipment safely

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant measuring devices and equipment

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

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ITINET2912A: Interpret installation plan

Competency Descriptor: This unit deals with the skills and knowledge required to effectively read and interpret installation plans and drawings in order to conduct installation or maintenance work in the Information Technology environment.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Identify types of drawings and their functions	1.1 Main types of plans and drawings used in the Information Technology industry are identified.
	1.2 Key functions of each type of drawing are identified.
	1.3 Key users of these drawings are identified.
2. Recognise commonly used symbols and abbreviations	2.1 Commonly used symbols and abbreviations are accurately recognised.
	2.2 Function of legend is clearly understood and is accurately explained.
	2.3 The scope and objectives of the installation are understood.
3. Locate and identify key features on installation plan	3.1 Key features and dimensions of the site are accurately identified and correctly located.
	3.2 Products to be installed are accurately identified and the installation sites are correctly located from plan.
	3.3 Products installation parameters and the required environment are accurately interpreted.
	3.4 Work settings and the topology are identified.
	3.5 Access to maintenance ducts and electrical/electronic panels are correctly located and identified.
	3.6 Service and utility areas are correctly identified.
	3.7 Orientation of the worksite is accurately identified.
	3.8 The location and type of other installed utilities are accurately identified.

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4.	Identify and locate key features from sectional details and elevations	4.1	Specific key features are identified correctly from sectional details and elevations.
		4.2	Structural features and horizontal/vertical measurements are correctly located.
5.	Recognise amendments	5.1	Title panel is carefully checked and checks are made to verify that the drawing used is the latest amendment.
6.	Read and interpret specifications	6.1	Purpose of specifications is correctly identified.
		6.2	Types of details are accurately identified from specifications.
		6.3	Errors are accurately identified and are referred to the appropriate personnel.
		6.4	Details required for own work activities are accurately interpreted, accurately recorded and correctly applied.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to interpreting installation plan.

Products to be identified from installation plan may involve:

- type of software
- hubs
- switches
- operating system
- routers
- servers
- bridges

Types of drawings include:

- site plans
- elevations
- floor plans
- sectional plans/elevations
- details and specification providing illustrations and dimensions

Key features of installation plan may involve:

- positions of workstations
- proposed system expansions
- communication systems
- hardware/software components
- surface or flush wiring
- existing system
- electrical system
- dimensions

Types of system may include:

- stand alone setting
- local area network setting
- wide area network setting

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Types of construction include but are not limited to:

- structural steel framed
- light steel framed
- timber framed
- reinforced concrete
- pre-cast concrete
- solid brick
- brick veneer

Service and utility may include:

- communication
- electricity
- gas
- water

Types of details include but are not limited to:

- topology
- cabling requirements
- types of software/software components
- Uninterruptible Power Supply (UPS)
- settings
- power requirements

Orientation of worksite includes:

- position relative to power supply and installation ports
- position relevant to other utility services
- compliance with ergonomic requirement

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to interpret installation plan in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- identify and understand various types of drawings
- identify dimensions, symbols, abbreviations and key features
- identify title panel and reference date as to up-to-date copy of drawings
- indicate sound understanding of purpose of specifications in accordance with the work orientation

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- a range of drawings
- materials relative to drawings/specifications
- measurements and calculations
- symbols, dimensions and terminology
- ergonomic requirements

Skills
The ability to:

- read and interpret drawings
- measure accurately
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- appropriate installation plans and drawings

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

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ITINET2922A: Prepare for installation activities

Competency Descriptor: This unit deals with the skills and knowledge required to effectively prepare for installation activities in accordance with industry and enterprise practices.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan for installation process	1.1 Quality Assurance requirements of enterprise's installation operations are recognised and adhered to.
	1.2 Knowledge of the relevant industry standards and best practices in regards to installation operations is maintained.
	1.3 Job requirements are accurately identified from installation plan/drawings and supervisor's instructions.
	1.4 Occupational Health and Safety (OH&S) requirements are identified and adhered to according to application tasks and workplace environment.
	1.5 Safety hazards are accurately identified and correct procedures adopted to minimise risk to self and others.
	1.6 Materials are selected according to supervisor's instructions or installation plan requirements, safely handled and stored/located and made ready for application.
	1.7 Appropriate personal protective equipment are selected, correctly fitted and used.
	1.8 Tools and equipment selected are consistent with job requirements, checked for serviceability and any faults are corrected within own area of responsibility or are reported to the relevant personnel.
2. Prepare components selected for installation process	2.1 Activities for components preparation are identified from specifications or supervisor's instructions.
	2.2 Preparation of components is carried out to satisfy requirements of installation process.

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		2.3	Correct manual handling techniques used to remove components to location of placement.
		2.4	Components are distributed and stacked to suit job location and installation sequence.
3.	Prepare work area suitable for installation process	3.1	Activities to be carried out in work area are identified from type of components, planned layout of system and access location.
		3.2	Work area is prepared for installation process according to enterprise guidelines, installation requirements and supervisor's instructions.
4.	Select tools, materials and equipment appropriate for installation process	4.1	All hand and power tools suitable for application processes are identified to job requirements.
		4.2	Hand and power tools and leads/hoses visually checked for serviceability/safety in accordance with OH&S requirements and any faults reported to the relevant personnel.
5.	Plan steps required to complete task	5.1	Based on instructions and specifications provided, the individual steps or activities required to undertake the task are understood and are clarified where necessary.
		5.2	Sequence of activities required to be completed is identified in the work plan.
		5.3	Planned steps and outcome are checked to ensure conformity with instructions and relevant specifications.
		5.4	Plan is submitted to supervisor to be reviewed.
6.	Review plan	6.1	Outcomes are identified and compared with (planned) objectives, task instructions, specifications and task requirements.
		6.2	If necessary, plan is revised to better meet objectives and task requirements.
7.	Confirm readiness for installation operations	7.1	All prerequisite activities for installation operations are checked to be complete in accordance with enterprise and industry requirements.
		7.3	Incomplete activities are referred to the appropriate authority in accordance with enterprise guidelines.
		7.4	Readiness to proceed with the installation tasks is confirmed with supervisor.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to preparing for installation activities.

Enterprise quality assurance requirements may include:

- quality of work
- testing procedures
- hand over procedure
- compliance with regulations and standards
- types of components
- tagging and labeling procedures

Installation operations may include:

- installation of new hardware
- installation of new software
- removal and replacement of existing component
- system upgrade
- expansion of existing system

Hand tools include but are not limited to:

- chisels
- hacksaws
- hammers
- measuring tapes
- nips
- pliers
- spanners and wrenches
- wire cutters

Power tools include:

- drills
- nail guns
- staplers
- screwdrivers
- sanders

Personal protective equipment may include:

- overalls
- boots
- hard hat/cap
- safety glasses/goggles
- gloves
- ear plugs/muffs
- face masks/respirators

Occupational Health & Safety requirements may include:

- workshop/worksite safe working practices
- use of tools and equipment
- use of power tools
- safe handling and storage of materials

Components may include:

- input/output devices
- processors
- storage devices
- memory
- plug and play cards
- drivers

Industry standards and regulation may include:

- Institute of Electrical and Electronic Engineers specifications
- relevant commercial building wiring standards
- appropriate network architecture standards
- relevant regulatory electrical wiring specifications

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Prerequisite activities may include:

- installation of cable tray
- installation of power system
- installation of workstations
- delivery of components
- removal of obstacles and potentially hazardous items
- isolation of worksite from live system

Component preparation may include:

- assembling component
- configuring component
- attachment of cables
- removal of packaging material
- attachment of protective devices

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to prepare for installation activities in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of industry standards, regulations and best practices applicable to installation operations
- indicate compliance with enterprise policies and procedures including Quality Assurance requirements
- interpret work specification, develop work plan and prepare worksite
- carry out all activities using the correct procedures prior to application of installation processes
- select required tools, equipment and materials and prepare relevant components
- adopt and use correct procedures to handle and place materials/components
- interactively communicate with others to ensure safe and effective worksite operations

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- workplace and equipment safety requirements
- industry regulations, standards and best practices
- drawings and specifications
- portable power tools
- hand tools and equipment
- materials/components preparation and handling
- industry accepted hardware and software components
- developing a work plan
- pre-installation requirements and processes
- workplace communications

Skills
The ability to:

- work safely to instructions
- read installation
- interpret job specifications
- use power tools and hand tools
- handle material/components
- select materials, tools and components
- develop work plan
- prepare components for installation
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant materials and components
- relevant tools and equipment
- enterprise and industry requirements and standards
- suitable work area

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
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Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

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ITINET2932A: Perform basic diagnostic testing

Competency Descriptor: This unit deals with the skills and knowledge required to prepare for and conduct test on the system and review results against expected outcomes.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Prepare to conduct tests	1.1	Given test plan is reviewed and verified with the relevant personnel.
	1.2	Relevant tasks to be completed within the test plan are reviewed and agreed on with the relevant personnel.
	1.3	Tools and techniques to be used in carrying out the tests are identified, reviewed and agreed on with appropriate personnel in accordance with enterprise and industry practices.
	1.4	Schedule for completion of relevant task is prepared in accordance with enterprise requirements and is structured to minimise disruption to other work activities.
	1.5	Test data and expected results are obtained from established sources and are accurately interpreted.
	1.6	Availability and capability of resources allocated to perform relevant tasks are confirmed.
	1.7	Shortfalls in resources are referred to the appropriate authority in accordance with organisational procedures.
	1.8	Appropriate test environment is agreed on with the relevant persons.
	1.9	It is ensured that the all necessary activities to be carried out prior to start of the testing process are completed and all incomplete actions are referred to the appropriate authority.
2. Perform test	2.1	The appropriate tools and techniques are used effectively to carry out testing in accordance with organisational and industry practices.
	2.2	Tests are performed in line with the agreed schedule.

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	2.3	Deviations from schedule are referred to the appropriate authority in accordance with enterprise policies and guidelines.
	2.4	All testing is performed in conformance with all enterprise and industry guidelines and standards.
	2.5	Failure to complete planned tests is referred to the appropriate authority.
	2.6	Test results are accurately recorded in the required format.
	2.7	Records of tests performed are accurately maintained in accordance with enterprise requirements.
3. Review test results	3.1	Actual test results are carefully checked against expected results.
	3.2	Discrepancies in results are correctly identified and accurately recorded in accordance with enterprise procedures.
	3.3	Recorded discrepancies are investigated within area of responsibility and appropriate corrective actions are suggested.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to performing basic diagnostic testing.

Testing may include:

- connectivity test
- continuity test
- hardware diagnosis
- network operating system diagnosis

Details of test plan may include:

- testing schedule
- resources
- testing strategies
- testing methodologies

Resources may include:

- hardware
- time
- materials
- software
- personnel

Guidelines and procedures may include:

- industry standards
- enterprise procedures
- industry codes of practice
- manufacturers' specifications

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Tools and equipment may include:

- cable checker
- multimeter
- cable tester
- tone generator
- tone locator
- time domain reflectometer
- optical time domain reflectometer
- crossover cable

Shortfalls in resources may include:

- inadequate quantities
- inadequate time
- limited capabilities of components
- incompatibility of components with system

Appropriate personnel may include:

- network administrator
- system administrators
- supervisors
- client support managers

Discrepancies may include:

- reduction in throughput
- noise
- loss of data
- lack of continuity

Records may include:

- details of test activities
- test results
- potential/real faults
- solutions

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to perform basic diagnostic testing in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of principles and procedures relating to test performance
- review and interpret given test plan and identify tasks to be completed
- establish testing schedule and testing environment
- assess applicability and capabilities of resources and identify shortfalls
- use test tools and techniques
- perform tests in conformance with schedule, enterprise guidelines and industry standards
- compare test data with expected outcomes and prepare and maintain test records
- investigate discrepancies and supply corrective measures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- contents of test plan
- principles relating to test performance
- industry accepted testing techniques
- relevant tools
- use of tools and resources
- capability of resources
- testing environment
- preparation of test schedules
- enterprise testing guidelines
- established sources of testing data
- testing records
- potential sources of discrepancies
- investigating discrepancies
- appropriate corrective measures for discrepancies

Skills
The ability to:

- interpret test plan
- identify tasks
- select tools and techniques
- prepare test schedules
- apply testing procedures
- access test data
- communicate effectively
- review results
- identify and correct discrepancies
- record test data
- maintain records

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- appropriate resources
- test plan
- sources of expected test results

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace
environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2942A: Prepare and install hardware products

Competency Descriptor: This unit deals with the skills and knowledge required to prepare for and conduct the installation of hardware products.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Prepare for installation	1.1	The contents of the given installation plan are reviewed and verified with the appropriate authority.
	1.2	Relevant tasks to be completed within installation plans are identified and agreed on.
	1.3	Appropriate tools and equipment are selected for use according to documented guidelines.
	1.4	All prerequisite activities are checked for completion.
	1.5	Incomplete activities are referred to appropriate authority.
	1.6	Readiness to proceed with installation tasks is confirmed with supervisor.
	1.7	Equipment distribution and locations are confirmed with the relevant authority.
2. Prepare products for installation	2.1	Hardware products are removed from packaging according to documented guidelines.
	2.2	Transport protection devises are disabled according to documented guidelines.
	2.3	Packing materials to be retained are stored in appropriate locations.
	2.4	Hardware products are consistently handled with due care and according to regulations.
	2.5	A safe and healthy working environment is maintained according to guidelines.
	2.6	Hardware products are checked against installation plan/packing list.
	2.7	Identified inconsistencies are reported to the appropriate authority.

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		2.8	Assembly sequence is correctly followed in accordance with manufacturer's specifications where necessary.
3.	Install hardware products	3.1	Installation is performed in accordance with enterprise's and manufacturer's specifications and procedures.
		3.2	Configuration options are set to match established installation requirements.
		3.3	Selected tools and equipment are effectively and efficiently used in accordance with enterprise's and manufacturer's guidelines.
		3.4	Hardware products are consistently handled with due care and according to regulations.
		3.5	Connections are consistently made correctly and securely.
		3.6	A safe and healthy working environment is maintained.
		3.7	Assembled hardware products are checked for completeness and readiness before power is applied.
		3.8	It is ensured that cabling and connections meet legislative and Occupational Health and Safety requirements.
		3.9	Installed hardware products are correctly labelled according to enterprise requirements and industry practices.
		3.10	All installation and testing are conducted in accordance with legislative and Occupational Health and Safety requirements.
		3.11	Records of installed products and installation activities are maintained according to organizational regulations.
4.	Review installation activities	4.1	All aspects of the installation including control and communications systems are tested using appropriate techniques and in accordance with safety requirements.
		4.2	The need for adjustments is identified and the required modifications are made accordingly.
		4.3	It is confirmed with the appropriate personnel that hardware installation meets requirements and the established signing off/handing over procedures are correctly followed.
		4.4	Relevant sign off/hand over documentation is completed accurately, legibly and concisely and accurate updates are made as required.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to preparing and installing hardware products.

Hardware products may include:

- personal computers
- I/O devices
- printers
- scanners
- monitors
- interface cards and drivers
- storage devices
- memory
- plug and play cards and drivers

Contents of installation plan may include but are not limited to:

- types and quantity of hardware products
- parameters to met
- resources required
- installation environment
- timeframe for completion of tasks
- installation procedures

Established guidelines and procedures may include:

- manufacturer's specifications
- enterprise guidelines
- industry standards
- legislative requirements
- Occupational Health and Safety

Appropriate personnel may include:

- network administrator
- system administrators
- supervisors
- client support managers

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to prepare and install hardware components in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of industry accepted hardware products and their preparation and installation procedures
- interpreting installation plan and job instructions
- selections and safe usage of appropriate tools and equipment
- preparation and installation of hardware products in accordance with legislative requirements and industry standards
- performing requisite testing and validation procedures
- completing and maintaining all documentation in accordance with requirements

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- interpretation of installation plans
- relevant tools and equipment
- industry standards
- commonly used packaging material and protective devices
- client business domain
- assembling hardware products
- configuration software
- testing procedures
- LAN capabilities
- Organisational contracting procedures and responsibilities
- Occupational Health and Safety regulations
- set up and configuration procedures
- software packages supported by the organisation
- installation procedures
- system diagnostic software

Skills
The ability to:

- provide excellent customer service
- solve problems
- interpret technical computer installation manuals
- negotiate effectively
- produce reports
- analyse and evaluate information
- communicate effectively
- carry out testing procedures
- perform installation procedures
- produce and maintain documentation
- use diagnostic software
- interpret installation plan and job requirements

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- hardware products
- relevant tools and equipment

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2952A: Prepare and install basic network components

Competency Descriptor: This unit deals with the skills and knowledge required to prepare and install new components in a network.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare to install network components	1.1 Installation plan is read and interpreted correctly.
	1.2 Clarifications are sought on the installation plan where ambiguities exist.
	1.3 Network components to be installed are confirmed with the relevant authority.
	1.4 Checks are made to ensure that the required components are available and in the amounts necessary.
	1.5 Site/location is inspected for suitability to components.
	1.6 Shortfalls are identified and recommendations made for improvements in accordance with enterprise guidelines.
	1.7 Current and future network capacity is determined taking into account current and future business needs.
2. Prepare components for installation	2.1 Network components are obtained in accordance with enterprise guidelines and licensing and security requirements.
	2.2 Transportation and protective devices and packaging seals are removed and disposed of in accordance with enterprise requirements.
	2.3 Network components are made ready for installation according to agreed schedule and vendor specifications.
	2.4 Items are added to inventory control systems in accordance with enterprise guidelines.
	2.5 Necessary configuration settings and testing to be carried out on components are determined.
	2.6 Appropriate component and device drivers are matched for functionality.

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3.	Confirm system environment	3.1	Network topology and protocol are thoroughly discussed with the appropriate authority.
		3.2	Network topology and communication protocols are discussed and confirmed with the appropriate personnel.
		3.3	Transmission access methods are discussed and confirmed with the appropriate personnel.
		3.4	New and existing network system software are checked for conflict with installation plan.
		3.5	Networking components are checked against organisational and client's requirements.
		3.6	Identified shortfalls or incompatibilities are reported to supervisor following enterprise guidelines.
4.	Install network component	4.1	Assembling procedure and sequences are discussed and confirmed with appropriate personnel.
		4.2	Network components are assembled correctly following enterprise and vendor procedures.
		4.3	Linkages between hardware components are decided on.
		4.4	Product interfaces are assembled and installed carefully using the correct procedures.
		4.5	Installation is configured and tested to ensure client needs are met.
5.	Provide support for installed products	5.1	Client's instruction needs are determined and are documented in accordance with enterprise requirements.
		5.2	One to one instruction to client is provided as required.
		5.3	Client evaluation and feedback are obtained to ensure requirements are met.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to preparing and installing basic network components.

Shortfalls may include:

- incompatibility of components
- inadequate resources
- inappropriate site/location for installation
- inadequate power requirements

Guidelines and procedures may include:

- enterprise requirements
- vendor requirements
- legislative requirements
- Occupational Health and Safety requirements

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Network components may include:

- printers and print servers
- monitors
- I/O devices
- network cards
- cables
- disks drives
- memory
- CPU upgrades
- adapters
- scanners
- software applications
- repeaters
- universal serial bus devices

Clarifications may include details on:

- type of components
- quantity of components
- layout of system
- parameters

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to prepare and install basic network components in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of industry accepted network components and their preparation and installation procedures
- interpreting installation plan and job instructions
- selections and safe usage of appropriate tools and equipment
- preparation and installation of basic network components in accordance with legislative requirements and industry standards
- performing requisite testing and validation procedures
- orientation of users to usage of components and delivery of operating instructions
- completing and maintaining all documentation in accordance with requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted network components with broad knowledge of general features and capabilities and detailed knowledge in some areas
- interpretation of installation plans
- relevant tools and equipment
- industry standards
- commonly used packaging material and protective devices
- client business domain
- assembling network components
- configuration software
- network operating system
- testing procedures
- LAN capabilities
- Organisational contracting procedures and responsibilities
- Occupational Health and Safety regulations
- set up and configuration procedures
- software packages supported by the organisation
- installation procedures
- system diagnostic software

Skills
The ability to:

- provide excellent customer service
- solve problems
- interpret technical computer installation manuals
- negotiate effectively
- produce reports
- analyse and evaluate information
- communicate effectively
- carry out testing procedures
- perform installation procedures
- produce and maintain documentation
- use diagnostic and configuration software
- interpret installation plan and job requirements

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- network components

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

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ITINET2962A: Review and maintain network system performance

Competency Descriptor: This unit deals with the skills and knowledge required to ensure that a network system is performing to expectations and remains effective.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Benchmark performance	1.1 Enterprise and customer performance expectations are identified from requirements documentation.
	1.2 Performance and maintenance benchmarks are identified according to technical requirements.
	1.3 Security benchmarks are identified according to the business requirements.
	1.4 The capabilities of the system are determined from technical documentation.
	1.5 Benchmark standards are documented and applied in accordance with enterprise policies and guidelines.
2. Review and track system performance	2.1 Performance is measured against benchmarks across all key performance areas.
	2.2 Actual performance results are carefully checked against expected results and all shortfalls are accurately documented.
	2.3 Use of resources in the system is reviewed to identify potential improvements.
	2.4 Procedures and processes for users and administrators to identify faults or suggest improvements are implemented according to enterprise and clients requirements.
	2.5 Automatic fault reporting procedures and processes are monitored according to enterprise requirements.
	2.6 Security measures are monitored and reviewed within own area of responsibility.
	2.7 Established administration and maintenance schedules are implemented according to enterprise policies and guidelines.
	2.8 Preventative maintenance and/or administration indicators are identified and the alert system is monitored.

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		2.9 User activity is tracked and authorized changes made according to user activity if necessary.
3.	Tune performance	3.1 Actual performance is compared against benchmarks over an appropriate period and changes to be made are identified based on discrepancies.
		3.2 Performance shortfalls are accurately documented and referred to the appropriate personnel.
		3.3 Diagnostic tools are used to correct faults and ensure performance benchmarks as directed.
		3.4 Preventative maintenance is undertaken on a regular basis to ensure continuous and consistent performance.
		3.5 Fault correction, maintenance and administration are completed as directed and all changes are documented.
4.	Initiate performance improvement	4.1 User surveys or feedback channels are available to identify any maintenance or administration requirements in order to ensure that the system continues to meet user expectations.
		4.2 Security tools and procedures are reviewed and improved as necessary.
		4.3 Maintenance and monitoring schedules are documented and implemented according the business requirements.
		4.4 Maintenance and administration documentation is evaluated to identify areas for performance improvement.
		4.5 Common faults or administration problems are identified from documentation and improvements are made as directed.
		4.5 System is updated site on a regular basis as directed.
		4.6 Responses to users who provide feedback and information are provided promptly.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to reviewing and improving network system performance.

Networks may include:

- small LAN
- large LAN
- peer to peer networks
- communication systems

Resources may include:

- hardware
- software
- data
- human

System performance may include:

- speed of operation
- easy access by authorized users
- ease of communication between users
- delivery of required outcome
- storage capacity
- easy storage and retrieval of data

Performance improvements may include:

- increased workflow
- increased capabilities
- increased storage capacity
- decrease incidents of system hanging up
- increased speed of operation
- increase in number of possible users

Established guidelines and procedures may include:

- manufacturer's specifications
- enterprise guidelines
- industry standards
- legislative requirements
- Occupational Health and Safety

Appropriate personnel may include:

- network administrator
- system administrators
- supervisors
- client support managers

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to review and improve network system performance in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of fundamentals and features of network system administration and maintenance
- demonstrate the ability to evaluate network system performance against established benchmarks
- identifications of performance shortfalls and changes required to improve performance
- provision and implementation of viable solutions to improve system performance
- apply organizational quality procedures and processes
- perform all maintenance and administration tasks in accordance with standard operating procedures
- complete appropriate documentations in accordance with enterprise requirements

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- system performance
- maintenance procedures
- current industry accepted hardware and software products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- diagnostic tools
- benchmark standards
- evaluating system performance
- system administration
- common network faults and relevant solutions
- network security
- network operating systems
- user expectations

Skills
The ability to:

- communicate effectively
- present information accurately
- apply diagnostic skills
- analyse and evaluate information
- solve problems
- perform maintenance procedures
- provide system administration
- evaluate performance against benchmarks
- provide solutions
- monitor system performance and user activities
- follow instructions
- interpret technical documentation
- produce reports

(4) Resource Implications

To demonstrate this unit of competence the candidate will require access to:

- workplace (actual enterprise or simulated)
- technical documentations and benchmarks
- maintenance and administration schedules

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Evidence may be collected in a variety of ways including:

- direct observation
- oral questioning
- written test
- evaluation of previous work
- testimonials from clients
- case studies/projects

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Method of Assessment (Cont'd)

- evaluation of qualifications/portfolio/awards/resume/workplace documents
- authenticated assessments and/or assignments from relevant training courses
- supporting statement from supervisor or previous employer

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2972A: Provide ideas for network solutions

Competency Descriptor: This unit deals with the skills and knowledge required to provide viable ideas to the development of network solutions based on technical knowledge.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Analyse client requests	1.1	Specific client requirements from logged requests are determined and analysed in consultation with other colleagues.
	1.2	Appropriate questions are asked to determine details of client requests and expectations.
	1.3	Client requests are investigated and documented in accordance with organisation guidelines.
	1.4	Enterprise database are checked for similar requests from other clients and the solutions provided are noted.
	1.5	Further appropriate investigation such as on site visit is carried out to gain further information.
	1.6	Logged requests are answered in a courteous and professional manner according to organisational policy.
2. Prioritise client requests	2.1	Scale of request is determined and confirmed with other team members.
	2.2	Constraints in fulfilling the requests are determined with other team members.
	2.3	Impact analysis of request to the organisation is undertaken in collusion with other team members.
	2.4	Priorities are determined in accordance with client requests, constraints and enterprise guidelines.
	2.5	Advice and support are provided to the team from database of known problems, if possible.

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3.	Confirm that proposed solution is the best reasonable fit	3.1	Analysis of client requirements has occurred and is confirmed.
		3.2	Solutions most useful to client needs are considered by each key client user.
		3.3	Proposed solutions are accepted by key decision makers.
		3.4	Analysis and recommendations are reviewed with management according to enterprise requirements.
		3.5	Ideas are contributed to the development of a plan that describes the project schedule, timeframe and cost constraints.
4.	Provide ideas for network solutions	4.1	Client requirements are confirmed.
		4.2	Advice is determined and provided or request is referred to appropriate party for further technical assistance.
		4.3	Advice is provided to overcome network problem or to provide new solutions in line with organisation guidelines.
		4.4	The appropriate manuals and help documentation are provided to client where necessary.
		4.5	Group or one to one instruction is provided to client as the need arises.
		4.6	Upgrade requirements or new components requirements are documented and recommendations are referred to supervisor/management.
5.	Develop ideas for alternative solutions	5.1	Reasons for changes to existing solutions are established and scope and function of proposed system are detailed.
		5.2	Alternative scenarios are described, assumptions are articulated and a few preferences are presented to members of the team.
		5.3	Alternative solutions are communicated to clients in accordance with enterprise requirements.
6.	Obtain client feedback	6.1	Client evaluation and feedback are obtained to ensure client requirements are met.
		6.2	The client is allowed to perform functions without assistance according to instructions where necessary.

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RANGE STATEMENT

This unit applies to activities associated with essential operations linked to conveying technical information to clients.

Advice on hardware may include:

- use of laptop, notebooks and disk drives
- operations of scanners and printers
- reconfiguration of settings
- adjusting screen resolution
- replacing existing equipment

Advice on software may include:

- creation of templates
- generation of complex reports
- use of macros
- log on procedures and passwords
- addition of upgrades

Support may include:

provision of manuals
identification of training needs
one on one training
referral to technical support

Identification of client requirements may involve:

- on-site examination
- interviewing client
- referring to similar complaints
- referring to vendor and product manuals

Organisation policies and procedures may include:

- client service standards
- IT training policy and procedures
- client liaison policy

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to provide ideas for network solutions in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- determination of client requirements
- analysis of support issues and researching for viable solutions
- provision of correct information to team members and clients
- compliance with organisation policies and guidelines
- escalating issues outside scope of responsibility to relevant party
- provide good ideas and perform excellent customer service
- provide relevant manuals and documentation to clients
- carry out relevant documentation and reporting
- work constructively with other parties to achieve required outcome

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- operating systems supported by the organisation
- advanced features and functions of software
- information sources
- contract and service agreements with vendors
- operating systems functions and basic features
- hardware and software supported by the organisation
- features of different types of hardware
- advanced knowledge of software features supported by the organisation
- security and network guidelines/procedures
- available in-house and vendor support
- Occupational Health and Safety legislation relating to the use of equipment
- needs assessment methodologies

Skills
The ability to:

- source and access information
- provide one to one instruction
- apply client needs assessment methods
- interpret technical manuals
- apply verbal and non-verbal communication skills to convey and clarify complex information
- apply customer service skills in a range of contexts at various levels
- work constructively with others
- provide a range of solutions to various requests

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- clients requests
- relevant information sources
- technical manuals and documentations

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2982A: Maintain knowledge of network systems and components

Competency Descriptor: This unit deals with the skills and knowledge required to maintain up-to-date technical knowledge of network systems and components.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Acquire knowledge of systems and components supported by the organization	1.1	Information sources about products and services are identified and evaluated for reliability and validity.
		1.2	Purpose/s and use/s of the products and services are identified.
		1.3	Key features of the products and services are identified.
		1.4	Products and service strengths and limitations are identified.
		1.5	Guarantees and warranties are articulated and service support details are identified.
2.	Convert knowledge into benefits	2.1	Features of the products and services which have potential greater user appeal are identified.
		2.2	Features of the products and services which have greater user appeal are presented as benefits.
		2.3	Products and services benefits are presented within the context of organisational requirements and legislation.
3.	Identify vendor products and equipment	3.1	Relevant products and equipment are identified with reference to business requirements.
		3.2	Interdependencies are identified and documented as required.
		3.3	Products and equipment are researched for availability.
4.	Evaluate systems and components	4.1	A range of information sources is used to identify competitors' or alternative products and services.
		4.2	Features of competitors' or alternative products and services are identified.

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	4.3	Potential benefits of competitors' or alternative products and services are identified.
	4.4	The strengths and weaknesses competitors' or alternative products and services are evaluated.
	4.5	Evaluation outcomes are used to improve service provision to customers.
5. Evaluate vendor products and services	5.1	Appropriate sources of information are accessed for current information on performance, integration capabilities and cost of vendor products, services and equipment.
	5.2	Specifications and limitations are documented and assessed with reference to business requirements.
	5.3	Information is sourced on rating of vendors for quality, support documentation, customer support and satisfaction.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to maintaining knowledge of network systems and components.

Equipment may include a wide range of hardware including but not limited to:

- routers
- bridges
- servers
- personal computers
- drives
- switches
- printers
- hubs
- modems
- personal organisers
- firewalls
- peripherals

Products may include a wide range of software including but not limited to:

- network operating systems
- payment software
- personal computer operating systems
- database software
- encryption protocols
- accounting software
- web browser software
- website building software
- spreadsheet software
- word processing software
- presentation software

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Information sources may include:

- other company personnel
- catalogues
- associations
- trade association magazines
- trade shows
- sales conventions
- claims of competitive sales people
- competitors' sales literature
- competitor websites
- internal sales data records
- external sales data sources e.g. warehouse withdrawals

Identification of system components may require consideration of the following:

- current business and IT strategic plans
- data models
- functional process descriptions
- user requirements
- architectures
- standards
- service levels

A feature may refer to:

- capability
- compatibility with other equipment
- versatility
- simplicity of operating
- size and durability
- ease of installation
- safety aspect
- shelf life
- warnings
- help features
- product care details

Benefits may include:

- greater performance
- greater capabilities
- speed of operation
- compatibility with other equipments and products
- more user friendly

Products may include:

- hardware components
- software components
- equipment
- tools
- information

Services may include:

- installation
- maintenance
- client support
- technical assistance
- consultancy

Strengths and weaknesses refers to:

- the capability elements of the a product to deliver benefits to potential buyers
- costs of product
- fulfilling future needs
- product being based on old technology
- difficulty of use and maintenance

Organisational requirements refers to:

- policy and procedures which are formally documented and are available for reference within the workplace
- the level of client service required
- customer service requirements
- policies regarding dissemination of information
- referrals of requests

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Legislation, codes and national standards relevant to the workplace which may include:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice
- ethics guidelines

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to maintain knowledge of network systems and components in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate product knowledge pertaining to both the organisation's ,competitors' and vendors' products and services
- identify and access reliable and current sources of information on products and services
- identify products and services and their corresponding features and capabilities
- assess strengths and weaknesses of products and services
- compliance with enterprise and legislative policies and guidelines in work activities
- perform relevant documentation and communication of information

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- organisation's products
- buying and selling processes
- the organisation's structure
- organisational requirements, including policy and procedures
- key competitors and their products
- industry trends and developments
- potential buyer markets
- current and future technical systems
- the features and function of relevant hardware components
- the features and function of relevant software products
- the interaction between relevant hardware and software products
- Broad general knowledge of the client business domain, for example when confirming system
- components to acquire, and when agreeing to methods to acquire components
- current industry accepted hardware and software products with knowledge of general features and capabilities and detailed knowledge in some areas
- vendor product directions
- copyright and intellectual property
- privacy and ethical guidelines
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination

Skills
The ability to:

- interpret legal requirements, product labelling and description and organisational requirements
- interpret sales data
- obtain information from a variety of verbal and non-verbal sources
- summarise information verbally and non-verbally
- relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities
- identify key sources of information
- understand specification sheets
- accurately summarise and document information
- see the conflicts and integration capabilities between diverse equipment
- organise and asses importance and relevance of product information
- communicate with vendors effectively organise performance deviations

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- technical documentation
- information sources

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2992A: Observe network security procedures

Competency Descriptor: This unit deals with the skills and knowledge required to monitor and maintain the security functions on the system.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Monitor user accounts	1.1 Default user settings are checked to ensure that they match security policies.
	1.2 Passwords and login scripts are checked for compliance with enterprise security requirements.
	1.3 Appropriateness of legal notices displayed at log on is ensured.
	1.4 Appropriate utilities are used to check strength of passwords used.
	1.5 Unauthorized network accesses are reported to the relevant authority in accordance with enterprise procedures.
	1.6 Procedures are followed to ensure that users who leave have their accounts disabled or deleted.
	1.7 Mail is monitored to uncover breaches in various legal acts and legislation.
	1.8 Information sources are accessed to gain information on well-known and up-to-date security gaps and the how to treat with them.
	1.9 Security breaches are recognised, documented and appropriate authorized actions are taken.
2. Follow software copyright procedures	2.1 Software licences are monitored and records of licence number and location are maintained.
	2.2 Personal computers and networks are checked for illegal software.
	2.3 Illegal software is identified and is reported to the relevant authority.

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3.	Secure file and resource access	3.1	In-built security and access features of the systems operating system are identified and are utilised.
		3.2	Users are made aware of security procedures.
		3.3	It is ensured that all personal security code or identity are not disseminated and are used correctly.
		3.4	File back-ups are carried out and stored in accordance with enterprise requirements.
		3.5	Accurate records of file back-ups are maintained.
		3.6	Threats to systems are monitored such as hackers, eavesdropping, viruses, etc.
		3.7	Virus checking software is installed at server and workstations.
		3.8	Viruses are scanned for and virus protection is maintained.
		3.9	Detected viruses are reported to the relevant personnel and appropriate authorized actions are taken to remove them.
		3.10	In-built or additional encryption facilities are used to ensure security.
4.	Monitor threats to the network	4.1	Appropriate third party software is used to assess and report on the security in place in the systems.
		4.2	Logs and audit reports are accessed to identify security intrusions or attempts.
		4.3	Spot checks and other activities are carried out to ensure that security procedures are being observed.
		4.4	Changes made to network facilities are identified and reported.
		4.5	Auditing activities are conducted as instructed and the reports are completed according to organizational guidelines.
5.	Execute security procedures	5.1	Company confidentiality is maintained at all times.
		5.2	Access of unauthorized persons to restricted areas is maintained.

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5.3 The terminals and the system are switched off when not in use in order to limit unauthorized access.

5.4 Output materials are kept secure and are only handled by authorized persons.

5.4 System back-ups are restored using established procedures and are recorded according to organisational guidelines.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to observing network system procedures

Issues relevant to security environment includes:

- relevant privacy laws
- organizational security policies
- ethical issues
- customer requirements/expectations
- expertise and knowledge that are, or may be, relevant

Security requirements may vary based on:

- business needs
- technical specifications of the system
- privacy concerns
- confidentiality of information

Commercial and business security requirements may include:

- back-up
- storage and recovery of data
- access to internal network
- passwords/logons
- firewalls
- hacking
- confidentiality
- integrity
- availability

Security policy may cover:

- theft
- viruses
- standards (including archival, back-up, network)
- privacy
- audits
- alerts, and
- usually relates directly to the security objectives of the organization

Software are likely to be packaged software but can be supplied from many varying vendors and can include:

- security
- audit
- virus checking, and
- encryption modules

Systems can include but are not limited to:

- mainframes
- distributed
- internet
- networks

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Operating procedures may include:

- handling of security internal breaches and customer requirements for security
- frequency and nature of archives
- back-ups
- alerts
- audits
- review, and
- test

Security threats can include:

- eavesdropping
- manipulation and impersonation
- penetration
- denial of service and by-pass

Security strategy may involve:

- privacy
- authentication
- authorization and integrity
- and usually relates directly to the security objectives of the organisation

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to observe network security procedures in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of security features available in the operating environment
- assess and monitor potential security threats
- restrict access to and unauthorised use of the system
- scan for viruses and maintain virus protection
- carry out file and system back-ups and storage
- initiate users in security procedures and increase security awareness

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products
- general features and capabilities of hardware and software products
- potential security threats to system
- the client business domain, business function and organization
- features and capabilities of systems technologies
- basic risk analysis
- general features of specific security technology
- privacy and privacy legislation
- virus protection
- login procedures
- security access and authorization
- industry security practices
- system hierarchy and restricted areas

Skill
The ability to:

- solve problems
- evaluate threats to systems
- monitor security
- apply security procedures
- scan for and remove virus
- source and access information
- carry out auditing
- carry out back-ups
- write reports
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- established security procedures and guidelines
- relevant software

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
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Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET3002A: Provide maintenance support services

Competency Descriptor: This unit deals with the skills and knowledge required to provide maintenance support and applies to persons who are involved in basic maintenance and the resolving of routine problems to procedures.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Determine maintenance required	1.1 The nature of the maintenance requests is clearly identified and is confirmed with the relevant personnel.
	1.2 Required equipment maintenance procedures and service level agreements are reviewed and understood.
	1.3 Procedures that can be handled internally are determined in accordance with enterprise guidelines.
2. Diagnose fault	2.1 Situation is assessed with a logical and efficient method to identify main cause of problem.
	2.2 Possible failures or performance degradation are tested with diagnostic tools or other examination techniques.
	2.3 Steps for cost effective resolution are identified and a timely solution to the problem is provided.
	2.4 Hardware device error conditions and error codes are recognised and corrective actions are taken within own area of responsibility.
3. Inspect equipment and work area	3.1 The location of faulty equipment and software on the system is accurately determined and potential disruption to user of maintenance activities is identified.
	3.2 Tags, service records and equipment manufacturer's information are read prior to commencing maintenance, noting user identified faults or difficulties and manufacturer's recommendations.
	3.3 Maintenance schedules are read and the required maintenance tasks are noted.
	3.4 Isolation mechanisms are accurately identified and are activate when required.

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		3.5	Equipment are checked prior to and after start up and maintenance, following procedures and specifications to ensure it is free from damage, leaks and obstructions.
		3.6	Checks are in the work area to ensure that it is safe and appropriate for the required tasks.
4.	Prepare for maintenance activity	4.1	Maintenance tasks to be undertaken are identified, confirmed with the relevant personnel and work activities are planned.
		4.2	Equipment to be maintained are turned off and isolated as required.
		4.3	The work area is cleared of obstructions and hazards.
		4.4	Step-by-step procedures are identified to minimise time delays and to sequence maintenance processes consistent with manufacturer's recommendations.
		4.5	Required tools, consumables and equipment are identified and assembled.
		4.6	Any work permits required are identified and appropriate action is taken in accordance with established procedures.
5.	Undertake basic maintenance activity	5.1	Any necessary components are obtained and repair to the equipment or software is completed in a timely manner so as to minimise disruption to the user.
		5.2	Procedures for the maintenance tasks are followed and appropriate adjustments are made to the plan, where required, to deal with unexpected events.
		5.3	Work is checked to ensure that the operational condition is to the required specifications.
		5.4	Equipment and accessories are cleaned and maintained in accordance with enterprise requirements and maintenance instructions.
		5.5	Spares and consumables are checked and replaced in accordance with enterprise requirements and manufacturer's instructions.
		5.6	Equipment safety checks are safely conducted in accordance with manufacturer's instructions.
		5.7	The status of all components checked, maintained and/or replaced are recorded or reported.

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		5.8	Operational aspects of the repaired equipment are tested and it is ensured that it is safe for use after repairs.
		5.9	Complex maintenance activities are referred to technical specialists in consultation with relevant personnel.
		5.10	Tools, equipment and unused consumables are returned to the appropriate location and waste is disposed in accordance with enterprise and legislative requirements.
		5.11	Work area is left in a clean and safe condition.
		5.12	It is ensured that all permits are signed off.
6.	Identify and assess faults	6.1	Visual inspections are conducted and checks are made for any equipment faults.
		6.2	Conditions which may cause difficulties in the future are identified and noted and assessments of the potential effect on the safe and efficient operation of the equipment are made.
		6.3	Labels are written and attached to faulty equipment in accordance with organisational procedures.
		6.4	Potential fault conditions are reported to the appropriate personnel.
		6.5	Complex faults and repair needs are discussed with technical specialists and, if appropriate, have technical specialists pilot the repair from a remote location.
7.	Complete maintenance records	7.1	Complete and file maintenance documentation according to enterprise procedures and provide copies to the relevant personnel.
		7.2	Clear references are made to any items which may not yet require maintenance but may affect the future working condition or safety of the equipment.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to addressing copyright requirements.

Maintenance requests may include:

- loss of power
- resolving error messages
- loss of access to network
- system "hanging up"
- loss of Internet service
- slow output

Maintenance procedures may involve:

- removal/replacement of consumables
- replacement of cables
- installation of upgrades
- diagnostic testing
- addition of new components
- optimization of system performance

Tools may include:

- screwdrivers
- pliers
- cutters
- wire strippers
- soldering iron
- insulation displacement tools
- cable termination tools

Test equipment may include:

- multimeters
- diagnostic tools
- communication testers
- insulation resistance/continuity tester
- relevant software

Maintenance options can include:

- on-site response
- remote diagnostics
- return to depot
- on-line realtime support
- web based support
- business hours only support
- 24x7 hours support
- telephone support
- second level support

Network faults and problems can be identified through:

- alarms
- customer complaints
- other carriers and service providers
- routine maintenance
- errors messages

Maintenance routines may involve:

- procedures to be undertaken as prescribed by equipment suppliers and for preventative, safety, enterprise requirements
- procedures prescribed in detail in vendor and/or enterprise documents and can be undertaken on a daily, weekly, monthly, six-monthly and annual basis
- routines conducted manually or are automatically built into the system software
- coverage from total system through to and individual pair of wires

Problems encountered during routine maintenance can include:

- low voltages
- damaged circuits
- software problems
- rodent damages
- occupational health and safety conditions
- vandalism
- general housekeeping and environmental problems

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Resources can include:

- people
- hardware
- software
- materials
- tools
- test equipment
- finance

Tests to diagnose faults may include:

- voltage, current, resistance and power measurement
- visually examining and measuring equipment for defects
- use of diagnostic tools

Standards and procedures may include:

- enterprise procedures
- manufacturers' specifications
- Occupational Health and Safety procedures
- communication procedure
- dispute resolution and modification procedures
- processes for determining size and cost

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- File & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Best practices may include, but are not restricted to:

- schedule of maintenance
- user recommended activities
- technical specialist activities
- identification and supply of parts
- repair of parts

Maintenance schedule may specify:

- time of installation
- consumables/components to be replaced
- type of testing
- parts of system to shut down

Service level agreements may involve

- workload and performance considerations
- expectations regarding servicing
- penalties
- charges

Operating systems may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to provide maintenance support services in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- application of knowledge of the materials, equipment and process sufficient to recognise out of specification products, process problems and materials faults
- demonstrate knowledge of the enterprise's procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and work standards
- apply approved maintenance procedures and minimises disruption to users
- take appropriate action to resolve faults or report faults to appropriate personnel
- implement shutdown and isolation procedures
- recognition of early warning signs of equipment in need of attention/with potential problems
- action is taken to ensure equipment is returned to full performance in a timely manner
- activities initiated are followed through until final resolution has occurred
- complete all documentation and reporting procedures to specification

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- principles of the operation of the equipment to be maintained
- functions and trouble shooting of major internal components and their problems
- typical causes of equipment failures and the service conditions which may increase maintenance
- urgency and timeliness factors in maintenance
- tools, materials and spare parts
- basic techniques for using and handling tools

Skills
The ability to:

- communicate effectively
- analyse, evaluate and present information
- work in a team
- contribute ideas for problem solutions and achieving goals
- negotiate skilfully
- write reports
- provide excellent customer service
- review maintenance procedures
- resolve conflicts
- identify tools, materials and spare parts
- apply basic techniques for using and handling tools

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- physical measurement, alignment and clearance principles
- manufacturers' maintenance specifications
- help desk functions
- industry accepted maintenance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- system's current functionality
- quality assurance practices
- change management tools
- system performance
- maintenance procedures
- enterprise scheduling requirements
- diagnostic tools
- isolation procedures
- service level agreements
- test equipments
- industry accepted testing procedures
- Occupational Health and Safety procedures
- error messages and the faults that produce them

Skills
The ability to:

- apply physical measurement, alignment and clearance principles
- interpret instructions and specifications
- conduct visual inspections and checks and take appropriate action
- undertake routine maintenance tasks as per work instructions
- diagnose faults
- plan work activities
- trouble shoot errors

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- appropriate resources for maintenance activities
- technical manuals and tools

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

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ITINET3012A: Install electrical/electronic component

Competency Descriptor: This unit deals with the skills and knowledge required to prepare for and conduct the installation of electrical/electronic components.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Plan and prepare for the work	1.1	Installation requirements are accurately identified and are confirmed with the appropriate personnel.
	1.2	A plan of work activities is developed and discussed/confirmed with the relevant authority.
	1.3	All resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications.
	1.4	The correct type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications and enterprise guidelines.
	1.5	Relevant plans and drawings are selected and accurately interpreted in accordance with the work requirements.
	1.6	Work area is prepared in accordance with work requirements and enterprise procedures.
	1.7	Potential hazards and obstructions are identified and appropriate actions are taken in accordance with established procedures
	1.8	Users and other involved parties are notified of isolation or shut down requirements and agreement is reached on time and duration of disruption.
	1.9	It is ensured that all tasks to be finished in preparation for installation work are completed and incomplete work is reported to the relevant authority.
	1.10	Work is planned in detail including sequencing of activities and prioritising so that work is completed efficiently and with minimal disruption to users.

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2.	Install the component	2.1	Required isolations/shut downs are confirmed where appropriate in accordance with enterprise requirements.
		2.2	Component is assembled, positioned and secured in accordance with manufacturers' specifications and industry best practices.
		2.3	Component is installed following manufacturers' installation procedures and regulatory requirements
		2.4	Relevant tagging, labelling and colour coding is carried out in accordance with regulations and enterprise requirements.
		2.5	Cables are run, secured and terminated in accordance with specifications.
		2.6	Occupational health and safety standards, legislative requirements and the relevant industry standards are identified and applied.
3.	Complete the work	3.1	Work is completed and appropriate personnel notified in accordance with enterprise requirements.
		3.2	Work area is cleared of waste, cleaned, restored in accordance with enterprise requirements.
		3.3	All wastes are disposed of in accordance with environmental safety guidelines.
		3.4	Tools and equipment are maintained and stored in accordance with manufacturers' specifications and enterprise guidelines.
		3.5	The required testing and checks are conducted to ensure that work is carried out to specifications and the necessary corrective measures are taken where problems exist.
4.	Prepare installation documentation	4.1	It is confirmed with the appropriate personnel that installation meets requirements and the established signing off/handing over procedures are correctly followed.
		4.2	Reports of installation activities are accurately completed and filed in accordance with enterprise procedures and guidelines.
		4.3	Relevant sign off/hand over documentation is completed accurately, legibly and concisely and accurate updates are made as required.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing electrical/electronic component.

Electrical/electronic component may include:

- modems
- expansion boards
- universal serial bus devices
- network interface cards
- computer bus
- adapters
- repeaters
- printers and copiers
- scanners

Work to be completed prior to installation may include:

- installation of power supply
- erecting of workstations
- installation of sub-surface conduits
- preparation of surfaces
- removal of hazards
- removal of power supply
- securing of work area

Materials may include:

- nuts and screws
- conduits
- connectors
- cables
- brackets
- cleaning solvents
- solder
- tags and labels

Tools and equipment may include:

- screwdrivers
- pliers
- wire strippers
- multimeters
- continuity detector
- soldering iron
- ohmmeter

Work plan may include:

- sequence of procedures
- resource requirements
- testing and quality checks
- time and duration of tasks
- isolation and shut down procedures
- restoration procedures
- details of installation procedures

Assembling of component may include:

- removal of protective packaging
- removal of safety devices
- configuring component
- attaching accessories
- attaching sub-components

Standards and procedures may include:

- industry best practices
- Occupational Health and Safety requirements
- legislative requirements
- statutory regulations
- enterprise guidelines and procedures
- quality assurance requirements
- industry standards

Relent personnel may include:

- supervisor
- system administrator
- network engineer
- network administrator
- managers

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install electrical/electronic component in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of electrical/electronic component and installation procedures
- adopt and carry out correct procedures prior to undertaking task
- demonstrate safe and effective operational use of tools and equipment
- demonstrate the ability to install electrical/electronic component
- plan work activities and work efficiently to minimize disruptions
- apply isolation/shut down procedures
- give particular attention to safety and elimination of hazards
- demonstrate safe handling/storage of material/supplies/equipment
- interactively communicate with others to ensure safe operations
- demonstrate compliance with all standards, statutory regulations and organizational policies and procedures including quality requirements
- compliance with reporting and documentation requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- electrical/electronic component
- material required to perform the work
- relevant tools and equipment
- isolation procedures
- pre-installation requirements
- installation requirements of the equipment
- operations of component
- manufacturers' specifications
- electrical/electronics fundamentals
- installation test and measurement procedures
- Occupational Health and Safety Standards

Skills
The ability to:

- apply occupational health and safety standards
- apply relevant industry standards
- follow relevant statutory requirements and codes of practice
- locate and interpret plans
- use tools and relevant equipment
- use test and measurement instruments
- run and terminate cables procedures
- use correct installation procedures
- identify and select relevant materials

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- relevant statutory requirements and codes of practice
- relevant industry standards

Skills
The ability to:

- carry out work completion details
- assemble components
- communicate effectively
- work safely

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant materials, components, tools and equipment
- enterprise and industry requirements and standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT0202A: Customise packaged software for clients

Competency Descriptor:

This unit deals with the skills and knowledge required to analyse, design, implement and review the customisation of packaged software applications using simple programming construct and applies to individuals operating in the information technology industry.

Competency Field: Information and Communication Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine customisation requirements of client	1.1	Client requirements are determined and are documented in line with organisational requirements.
		1.2	System relationships are accurately determined.
		1.3	Analysis of client requirements is accomplished in line with established guidelines and procedures.
		1.4	Client requirements are actively listened to and conformed to in line with guidelines and procedures.
		1.5	Report for supervisor is prepared to client requirements in conformance with organisational guidelines and procedures.
		1.7	Client agreement on all aspects of the report is obtained.
2.	Analyse impact of customisation on system relationship	2.1	Customisation is designed taking into account system limitations and the relevant guidelines.
		2.2	Customisation is designed taking into account client needs and adhering to guidelines and operating procedures.
		2.3	Client agreement on design is obtained.
		2.4	Software package is customised using simple programming constructs conforming to organisational guidelines and employing the correct procedures.
		2.5	Client feedback following client testing and application is obtained.
		2.6	Changes to customisation are made to meet amended client requirements following the correct procedures.

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3.	Provide support for customised application	3.1	Training requirements of client are determined and are documented according to established procedures.
		3.2	Client documentation is prepared and is provided to client and help desk for future support in conformance with procedures.
4.	Obtain client feedback	4.1	Client evaluation and feedback is obtained to ensure their requirements are met.
		4.2	Function is performed by client unassisted and according to instruction.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to customising packaged software for clients and applies to individuals in the information technology industry.

Hardware may include:

- personal computers
- peer to peer networked computers
- client servers

Information Technology components may include:

- hardware
- software
- communications packages

Tools may include:

- tools to enable documentation
- tools to enable application customisation

Customisation software may be limited to the features of a commercial application.

Software may include but are not limited to:

- commercial software applications
- organisational specific software
- word processing
- spreadsheet
- database
- graphic
- communication packages
- presentation functionalities

Storage media/disks may include but are not limited to:

- diskettes
- CDs
- zip disks
- local HDDs
- remote HDDs

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Software may also include presentation applications contained in:

- Microsoft Office
- Lotus Suite
- Claris Works
- Star Office
- other similar applications

Keyboarding speed will vary according to:

- different organisational requirements
- different job roles within an organisation

The keyboard technique will be in line with OHS requirements for safe use of keyboards.

Organisational variables may include but are not limited to:

- client service standards
- style guide
- client support documentation procedures
- storage procedures for macro/template such as common drive, hard disk, software library

Occupational Health and Safety considerations include:

- company requirements
- statutory requirements
- vendor requirements.

Ergonomic and environmental factors must be considered during the demonstration of this competency

Documentation and reporting involves:

- documentation for version control may follow ISO standards
- audit trails
- naming standards
- version control
- project management templates and report writing styles will vary according to organisational approach

Information gathering processes may have associated templates.

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to customise existing software applications such as relational databases and the analysis, implementation and review of customisation of packaged software applications in accordance with the performance criteria and the range listed within the range of variable statements.

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(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- perform tasks to specification
- use software tools effectively
- demonstrate the ability to navigate desktop environment
- interpret job specifications
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

(2) Pre-requisite Relationship of Units

- ITICOR0231A Operate a personal computer

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- detailed knowledge of function and features of software applications
- general knowledge of organisational security procedures
- organisational policy for customising software
- broad knowledge of Information Technology structure and system infrastructure
- broad knowledge of OHS requirements in relation to work safety, environmental factors and ergonomic considerations
- organisational policy and procedures relating to customising software
- general knowledge of functions and features of the operating system
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- a basic knowledge of information gathering techniques

Skills
The ability to:

- solve unknown problems in a range of contexts
- make decisions in a wide range of contexts
- write reports involving analysis and evaluation in some depth
- apply customer service skills in a range of contexts at various levels
- carry out questioning and active listening to convey and clarify complex information
- give one to one instruction
- demonstrate technical interpretation skills in relation to routine problems and issues
- apply new developments in the technology to work

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(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- personal computer
- appropriate software packages

(5) Method of Assessment

Competence in this unit may be assessed using formative assessment to ensure consistency of performance in a range of contexts.

Assessment of this unit of competence could include review of documents developed by the candidate. Questions related to the performance criteria and directed to the candidate, peers and business client will assist in assessing competence. Observation of skills wil l assist in the collection of evidence.

Simulated activities must closely reflect the workplace.

Peers and supervisors must be available to give information on the extent and the quality of contribution made.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of per formance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills

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ITINET3162A: Determine and resolve client computing problems

Competency Descriptor: This unit deals with the skills and knowledge required to record and prioritise client support activities, determine the required resources, solve the client problem or escalate where necessary and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine client problem	1.1	Appropriate questions are asked to determine accurately client problem in line with organisation guidelines.
		1.2	Client problem is documented for follow-up according to organisation guidelines.
		1.3	Specific client requirements from logged requests are determined and further appropriate investigation such as on site visit is carried out to gain further information.
2.	Prioritise client problems	2.1	Scale of problem is determined and monitored in accordance with procedures and guidelines.
		2.2	Problem constraints are accurately determined.
		2.3	Impact analysis of problem to organisation is undertaken following the appropriate procedures.
		2.4	Priorities are determined in line with policies and procedures.
		2.5	Advice and support are provided to the client from database of known problems where the possibility exists.
3.	Refer maintenance to supervisor where required	3.1	Options of referral or action are investigated and appropriate process is followed.
		3.2	Client help documentation is provided as required following established procedures.
		3.3	Maintenance and technical support agreements are determined according to organisation guidelines.
		3.4	Problem is referred to supervisor, management or technical area as required.

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		3.5	Referrals are documented and tracked according to organisation guidelines.
4.	Carry out maintenance	4.1	New components are obtained in line with organisation guidelines.
		4.2	Maintenance is completed in line with organisation guidelines.
		4.3	Used components are stored and disposed of in accordance with organisation guidelines.
5.	Prepare maintenance report	5.1	Maintenance is prepared in line with organisation guidelines.
		5.2	Maintenance requirements to appropriate area are escalated as required.
6.	Confirm problem resolution	6.1	Client evaluation and feedback are obtained to ensure requirements of client are met.
		6.2	Problem is resolved to client satisfaction or client is referred to supervisor/appropriate person for follow-up.
		6.3	Problem is resolved to client satisfaction.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to determining and resolving client computing problems.

Advice on hardware supported by the organisation include but not limited to:

- operation of printers
- setting of screen resolution
- formatting of disks
- reconfiguration of printers and scanners

Support may include:

- provision of client documentation
- manuals
- documentation from vendor

Advice on software supported by the organisation may include but is not limited to:

- formatting spreadsheets
- creation of graphs
- setting up of word processing documents for printing
- setting up an electronic mail system

Investigation may include:

- on site examination
- question and answers
- active listening to client and other employees
- contacting vendor
- contacting maintenance contract organisations
- referring to technical area

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Organisational procedures includes:

- security procedures
- logged call procedures
- contracting arrangements relating to Information Technology purchasing

Client user may include:

- a member of the organisation
- a department within the organisation
- the entire organisation
- an external party

Database of known problems may include:

- information available in the workplace
- information available on the Internet
- information available from software vendors

EVIDENCE GUIDE

Assessment must confirm the ability to record and prioritise client support activities, determining the required resources and solving the client problem or escalating according to organisational guidelines or practices in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- collect, evaluate and report information on problems and solutions
- organise and prioritise work assignments
- provide solutions and make decisions within limits of responsibility
- escalate problems to appropriate personnel and follow up accordingly
- carry out appropriate installation and maintenance to specification
- use effective consultative processes and feedback mechanisms
- comply with reporting and documentation guidelines

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- principles of equal employment opportunity and anti-discrimination
- technical and organisational systems
- operating systems functions and basic features
- current industry accepted hardware and software products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- escalation procedures
- hardware and software supported by the organisation
- Information Technology terminology
- telephone, fax and on-line functions and procedures
- work group procedures
- in-house or vendor support available
- security and network guidelines/procedures
- Occupational Health and Safety regulations

Skills
The ability to:

- provide good customer service
- make decisions involving discretion and judgement
- manage time for self and others
- solve problems in a variety of contexts
- use questioning and active listening for conveying and clarifying information
- interpret technical manuals
- evaluate client needs

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- appropriate tools and equipment to undertake maintenance

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1322A: Maintain equipment/software inventory

Competency Descriptor:

This unit deals with the skills and knowledge required to record and store the organisation's software, equipment and technical documentation and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Document and update inventory	1.1	Inventory is maintained to include Information Technology equipment movements, new purchases or redundant equipment in line with enterprise guidelines.
		1.2	Software inventory and licences are maintained and updated in line with upgrades.
		1.3	Manuals and associated technical documentation are recorded and stored according to organisation policies.
		1.4	Unused equipment is stored according to technical manuals
2	Store technical documentation	2.1	Technical documentation is stored as required by organisational guidelines.
		2.2	Technical documentation is accessed and disseminated as required to meet client requirements.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to maintaining equipment/software inventory.

Organisational variables may include but are not limited to:

- security procedures
- storage and retrieval of product licences
- storage of Information Technology equipment and documentation
- disposal policy
- literacy policy
- technical manuals (in-house, product and vendors)

Software may include but are not limited to:

- commercial software applications
- organisational specific software
- word processing
- spreadsheet
- database
- graphic
- mail
- Internet browsers
- presentation functionalities

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Equipment may include but are not limited to:

- personal computers
- networked systems
- personal organisers
- communications equipment

Peripherals may include:

- printers
- scanners
- tape cartridges
- speakers
- multi media kits

Keyboard equipment may include:

- mouse
- touch pad
- keyboard
- pens

Standards may include:

- ISO standards
- statutory requirements
- vendor requirements
- documentation and reporting

EVIDENCE GUIDE

Assessment must confirm the ability to accurately and regularly update and maintain the software, equipment and technical documentation inventory according to identified storage and retrieval policy and procedures in accordance with the performance criteria and the range listed within the range of variables statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- assess and update inventories regularly
- adhere to licensing requirements according to organisation and vendor requirements
- interpret workplace documentation and technical manuals
- compliance with organisation policies on storage and distribution of equipment and technical documentation

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- organisational systems
- software licensing requirements
- general copyright regulations
- inventory principles and procedures
- current business practices in relation to preparing reports

Skills
The ability to:

- reading and interpret workplace documentation
- write reports
- communicate effectively
- present information
- solve problem
- make decisions

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- relevant policies and guidelines

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1802A: Provide remote helpdesk support

Competency Descriptor: This unit deals with the skills and knowledge required to resolve first level user support difficulties remotely and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine user support issue	1.1	The eligibility status of the individual experiencing the user support difficulty is determined against organisational policies for user support services.
		1.2	The user support difficulty with customer/client is clarified using active listening (if over the phone) and questioning techniques.
		1.3	The user support difficulty is confirmed with the client without using jargon.
2.	Identify hardware or software being used by the customer/client	2.1	The software, hardware or application (browser, operating system, hardware) being used by the customer/client is identified.
		2.2	The outcome the client is trying to achieve and the progress made is identified using active listening (if over the phone) and questioning techniques.
		2.3	Steps taken by the client is retraced back to the beginning of the process without using jargon.
		2.4	The client is taken through the process in a clear and logical manner without using jargon.
3.	Confirm resolution of user support issue	3.1	Factors that may create the user support issue are eliminated.
		3.2	The customer/client is walked/ talked successfully through complete process.
		3.3	If resolution is unsuccessful, next level escalation process is offered to the client and the costs are explained or client is referred to the next level of support for resolution.

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4.	Maintain communication link	4.1 Resolution of difficulty with client is confirmed in line with the organisation's customer service policy.
		4.2 Client/customer satisfaction with current service is confirmed in line with the organisation's customer service policy.
		4.3 Client is informed of additional support or services available in line with the organisation's customer service policy.
		4.4 Client is provided with additional information related to products and services offered by the organisation as required by the organisation's up-selling requirements.
		4.5 Customer contact is completed in line with the organisation's customer service requirements.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to providing remote helpdesk support.

Remote support may include contact with customer contact centre/desk via:

- phone
- e-mail
- real-time website support
- facsimile

Equipment may include:

- telephones
- enterprise specific applications which incorporate real-time support for web based products and services
- fax machine

Organisation policies and procedures may include:

- customer service policies
- user support policies
- up-selling targets and requirements
- escalation procedures
- documentation and reporting

Standards may include:

- ISO standards
- Occupational Health and Safety standards
- statutory requirements
- vendor requirements

Client support issues may include:

- use of software applications
- installation of peripherals
- operation and configuration of peripherals
- user access
- networking problems

Escalation may include:

- referral to supervisor
- referral to technical support area
- referral to contracted service agents
- contacting vendors

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EVIDENCE GUIDE

Assessment must confirm the ability to successfully resolve user support difficulties remotely whilst displaying good customer service skills and the ability to up-sell in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- collect and evaluate information on client support issues
- use effective techniques to determine needs and provide support
- demonstrate technical knowledge in resolving user support issues
- compliance with all relevant organisational and statutory requirements
- apply good customer service and maintain open lines of communication
- use relevant enterprise system to retrieve and document information
- escalate support needs to appropriate party and track progress of request

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- customer service policies
- escalation procedures
- user support policies
- Occupational Health and Safety procedures
- functions and features of software and hardware products
- current industry procedures and practices
- organisation structure and culture
- client business domain
- different Information Technology systems and their operations
- enterprise services and products

Skills
The ability to:

- up-sell services and products
- apply a range of well developed customer service skills
- use enterprise systems for recording and accessing information and following procedures
- listen actively to identifying customer problems
- communicate clearly and precisely in relation to identifying customer problems, identifying where in the process the problem has occurred and providing advice to resolve the problem
- interpret user manuals for purposes of resolving customer problems and guiding customers through manuals

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(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- customer service policies
- user support policies
- escalation procedures

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 1	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level -	
Solve problems	Level 3	
Use technology	Level 2	

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ITINET1372A: Install software applications

Competency Descriptor:

This unit deals with the skills and knowledge required to install software applications under instructions and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine software or software upgrade requirements of clients	1.1	Client requirements are clearly documented and reported to supervisor according to established procedures.
		1.2	Supervisor's instructions to meet client requirements are acted on in line with organisation guidelines, corporate purchasing and licensing arrangements and budget constraints.
2.	Obtain software or software upgrade	2.1	Appropriate software is obtained under instruction from management or supervisor.
		2.2	Licensing requirements are determined and recorded in line with organisation guidelines.
3.	Install software or upgrade	3.1	Upgrades are installed to meet supervisor instructions and in accordance with installation procedures.
		3.2	Process is undertaken so clients experience minimal disruption.
		3.3	Computer is correctly installed to accept software according to installation instructions.
		3.4	Testing and acceptance are carried out in line with corporate guidelines.
		3.5	Client requirements are satisfied and amendments are made as required for client or the client is referred to appropriate person/supervisor if necessary.

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RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to operating a personal computer and applies to all individuals in the information technology industry.

Hardware may include but not limited to:

- personal computers but not networks

Client user may include:

- department within the organisation
- third party

The relation and ease of access will vary.

Software may include but are not limited to:

- commercial software applications
- organisational specific software
- operating systems - stand alone PC systems and network operating systems
- word processing
- spreadsheet
- database
- graphics
- communication packages
- any applications as used by the organisation
- software installation instructions and manuals
- range of suppliers

Organisation variables may include but are not limited to:

- contracting arrangements relating to Information Technology purchasing
- licensing requirements and supplier options
- storage and retrieval of product licences
- storage of Information Technology equipment and documentation
- testing standards

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install software applications through operating system instructions and to configure computer to accept new software or upgrade in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- perform tasks to specification
- use software tools effectively
- demonstrate the ability to carry out installation procedures
- interpret job specifications
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

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(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- ITICOR0231A Operate a personal computer

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- organisational guidelines for purchasing
- broad general knowledge of licensing arrangements and responsibilities
- broad general knowledge of software copyright responsibilities
- broad general knowledge of operating systems supported by the organisation
- broad general knowledge of hardware storage devices
- broad general knowledge of input/output devices
- broad general knowledge of the client business domain

Skills
The ability to:

- provide general customer service
- make decision in a limited range of options
- demonstrate problem solving of known problems in routine procedures
- exhibit plain English literacy and communication skills in relation to the presentation of information
- display report writing skills for business requiring some analysis and evaluation of information in a defined range of areas

(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- software

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Simulated activities must closely reflect the workplace.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT0212A: Use advanced features of computer applications

Competency Descriptor:

This unit deals with the skills and knowledge required to utilise computer applications to their full capacity employing all advanced features as required and applies to individuals operating in the information and communication technology industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Manipulate data	1.1	Advanced features of application are appropriat ely employed in the preparation and presentation of data.
		1.2	Data is efficiently transferred between applications.
		1.3	Objects, macros and templates are created correctly and appropriately employed for routine activities.
		1.4	Shortcuts and featur es are regularly employed for increased productivity.
		1.5	Related data files are linked as required.
2.	Access and use support resources	2.1	Routine problems are promptly solved with the use of the appropriate support resources.
		2.2	Online help is easily accessed and used to overcome difficulties with applications.
		2.3	Manuals and training booklets are used to solve advanced problems expeditiously.
		2.4	Problems are accurately analysed and speedily eliminated according to results.
		2.5	Technical support is accessed and trouble shooting results and alert messages are supplied to technical support in the appropriate timeframe.

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3.	Configure the computing environment	3.1	Performance of PC is enhanced in line with organisational guidelines.
		3.2	Environment is configured according to user/organisational requirements.
		3.3	PC environment is customised to requirements and optimised.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to utilisi ng computer applications to their full capacity employing all advance features and applies to individuals in the information and communication technology industry.

Hardware components may include but are not limited to:

- personal computers
- networked systems

Documents may include but are not limited to:

- established files
- established applications

Software applications may include but are not limited to:

- commercial software applications
- organisational specific software
- word processing
- spreadsheet
- database

Applications may include presentation applications contained in:

- Microsoft Office,
- Lotus Suite,
- Claris Works,
- Star Office
- other similar applications

Storage media/disks may include but are not limited to:

- diskettes,
- CDs,
- zip disks,
- local HDDs,
- remote HDDs

Information Technology components may include:

- hardware,
- software
- communication packages

Keyboarding speed will vary according to different organisational requirements and different job roles within an organisation. The keyboard technique should be in line with OH&S requirements for safe use of keyboards.

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Documentation and reporting documentation for version control may follow ISO standards:

- audit trails
- naming standards
- version control
- project management templates and report writing styles will vary according to organisational approach.
- information gathering processes may have associated templates

Organisation variables may include but are not limited to:

- keyboarding and accuracy as per organisation guidelines;

Occupational Health and Safety guidelines related to use of:

- screen based equipment
- computing equipment and peripherals
- ergonomic work stations
- security procedures

Occupational Health and Safety standards may include:

- company requirements,
- statutory requirements
- vendor requirements

Ergonomic and environmental factors must be considered during the demonstration of this competency

Ergonomics considerations may include but are not limited to:

- occupational health safety procedures
- using and cleaning visual display units (VDUs)
- advice on footrests
- exercises
- time for breaks
- armrests
- chairs

Environmental safety issues may include:

- air quality
- lighting
- noise level
- cleanliness of equipment, furniture and surroundings
- fire hazards
- minimization of electromagnetic radiation (EMR)

EVIDENCE GUIDE

Assessment must confirm the ability to utilise computer applications to their full capacity employing all advanced features and import/export capacities for efficiency and productivity purposes according to the performance criteria and the range listed within the range of variable statements.

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(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable t o workplace operations
- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- perform tasks to specification
- use software tools effectively
- demonstrate the ability to navigate desktop environment
- interpret job specifications
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

(2) Pre-requisite Relationship of Units

- ITICOR0231A Operate a personal computer
- ITICOR0241A Operate a word processing applications (basic)
- ITIDAT0171A Operate a spreadsheet application (basic)
- ITIDBO0251A Operate a database application (basic)
- ITIMED0261A Operate a presentation package (basic)

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- general Occupational Health and Safety principles and responsibilities
- basic understanding of operating systems software and system tools
- broad knowledge base of vendor product directions
- broad knowledge base of vendor applications and their features
- basic understanding of troubleshooting
- broad knowledge of Occupational Health and Safety requirements in relation to work safety, environmental factors and ergonomic considerations

Skills
The ability to:

- follow health, safety and security procedures
- use applications features correctly
- communicate effectively
- apply problem solving skills
- interpret technical information
- analyse situations

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(4) Resource Implications

Competency can be demonstrated in a simulated environment or in the workplace.

The following resources should be provided:
- personal computer/network system
- appropriate computer application

(5) Method of Assessment

Competence in this unit may be assessed using formative assessment to ensure consistency of performance in a range of contexts.

Assessment of this unit of competence could include review of documents developed by the candidate. Questions related to the performance criteria and directed to the candidate, peers and business client will assist in assessing competence. Observation of skills will assist in the collection of evidence.

Simulated activities must closely reflect the workplace.

Peers and supervisors must be available to give information on the extent and the quality of contribution made.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess under pinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1362A: Connect hardware peripherals

Competency Descriptor:

This unit deals with the skills and knowledge required to connect hardware peripherals according to instructions and applies to individuals operating in the information and communication technology industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Confirm requirements of client	1.1	Client's peripheral requirements are identified and are confirmed in accordance with organisation standards.
		1.2	Client requirements and peripherals needed in line with organisation guidelines are documented and are reported to the supervisor.
		1.3	Client requirements are cleared with supervisor in line with organisation guidelines.
		1.4	Client support expectations are covered by vendor's warranty and support services.
2.	Obtain required peripherals	2.1	Peripherals are obtained under instruction from management/supervisor.
		2.2	Peripherals are entered into equipment inventory according to organisation's procedures.
		2.3	Contents are validated and method of ensuring the physical contents match the packing list is demonstrated.
		2.4	Peripherals are stored according to vendor/manual guidelines.
3.	Connect hardware peripherals	3.1	Timeframe for installation schedule is verified with higher authority in line with organisation guidelines.
		3.2	Existing peripherals are disconnected and replaced, with minimal disruption to clients.
		3.3	New peripherals are connected with minimum disruption using the correct procedures.

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3.4 Computer is configured to accept new peripherals.

3.5 Hardware peripherals are tested, client satisfaction is confirmed and amendments are made as required for client in line with procedures and guidelines.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to connecting hardware peripherals according to instruction computer and applies to individuals in the information and communication technology industry.

Peripherals may include but are not limited to:

- printers, scanners, tape cartridges,
- speakers, multi media kits,
- PC fax, modems,
- key board equipment may include mouse, touch pad, key board, pens
- mobile phones, palmtops & PDAs, laptops, and desktop computers
- Bluetooth devices, Universal Serial Bus (USB)

Peripherals can be sourced from existing inventory or vendors.
Peripherals will normally connect to an existing interface port or wireless and do not include peripherals accessed internally.

Hardware may include Information Technology equipment of all types:

- Workstations, PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems
- Bridges, 3Com, Compaq, CISCO, IBM
- modems, analog, cable, ISDN, DSL
- servers, Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards, Adaptec, ARTIC, Compex, SMC
- switches, 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters, 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways, 3Com, CISCO, D-Link, Intel,
- File & print servers, AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Operating systems may include but are not limited to:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

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Software and applications may include;

- packaged software
- in-house development
- out-sourced development

The amount of maintenance, change and tailoring that can be undertaken will vary.

Thus documentation and other procedures will vary. Systems to monitor change request may be manual or computerised.

Occupational Health and Safety standards may include:

- company requirements
- statutory requirements
- vendor requirements.

Help desk and maintenance structures for reporting will vary to include:

- call centre or a general contact point which then calls a supplier or other technician
- others may be staffed by technicians capable of solving the problem

Configuration includes:

- automatic
- plug and play
- manual

Ergonomic and environmental factors must be considered during the demonstration of this competency.

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to correctly connect internal hardware components according to vendor and technical specifications in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- perform tasks to specification
- observe security procedures
- demonstrate the ability to follow installation procedures
- interpret job specifications
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

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(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- ITICOR0021A Apply Occupational Health and Safety procedures

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- broad general knowledge of OH&S procedures for electrical equipment
- detailed knowledge of inventory procedures
- organisational guidelines relating to external suppliers and vendors
- general understanding of systems, technical
- broad knowledge base incorporating theoretical concepts of three or more current industry accepted hardware peripherals; knowledge of general features and capabilities and detailed knowledge in some
- broad knowledge base incorporating theoretical concepts of three or more current industry accepted system components; knowledge of general features and capabilities and detailed knowledge in some
- broad knowledge base incorporating theoretical concepts of operating systems
- broad knowledge of help desk and maintenance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- broad knowledge base incorporating theoretical concepts of input/output devices

Skills
The ability to:

- provide customer service skills in relation to maintenance procedures
- handle difficult clients skilfully in relation to maintenance procedures
- apply conflict resolution skills in relation to maintenance procedures
- make decision in a limited range of options
- display literacy in regard to general workplace documentation
- solve problem for a defined range of predictable problems
- exhibit Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- demonstrate facilitation and presentation skills in relation to transferring and collecting information
- use negotiation skills in relation to other team members and applied to a defined range of predictable problems
- demonstrate report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas

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(4) Resource Implications

To demonstrate this unit of competence the candidate will require access to:

- the organisation's hardware blueprint
- the vendor's support staff (on call if assessment is a live activity)
- additional staff may be required to support the assessment

(5) Method of Assessment

Competence in this unit needs to be assessed using formative assessment to ensure consistency of performance in a range of contexts.

Assessment of this unit of competence will usually include observation of real or simulated work processes and procedures, quality projects and questioning on underpinning knowledge and skills. The questioning of team members will provide valuable input to the assessment.

Simulated activities must closely reflect the workplace and may need to take place over a period of time.

Evidence can be collected through a supervisor's report, peer reports and client reports. Each report should be structured and require comment on each performance criteria and the evidence guide.

(6) Context of Assessment

This competency can be assessed in the workplace or in a simulated environment. The purpose of this unit of competence is to define the standard of performance to be achieved in the workplace.

An individual demonstrating these competencies would be able to: demonstrate knowledge by recall in a narrow range of areas; demonstrate basic practical skills, such as the use of relevant tools; perform a sequence of routine tasks given clear direction; and receive and pass on information.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1502A: Determine and action network problem

Competency Descriptor: This unit expresses the competency required to document network related problems, determine the required resources and solve the client problem or escalate as necessary.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine client problem	1.1	Logged call from help desk is received.
		1.2	Client problem is determined, further information from client is gained and documented as required by organisation guidelines.
2.	Determine whether maintenance is covered by policy	2.1	Maintenance and technical support agreements are determined.
		2.2	Organisational policy regarding maintenance is followed.
3.	Carry out maintenance	3.1	Diagnostic tests are conducted as required.
		3.2	Maintenance is completed in line with organisation guidelines.
		3.3	New components are obtained in accordance with enterprise guidelines and procedures.
		3.4	Components are stored or disposed of in accordance with organisation guidelines.
4.	Prepare maintenance report	4.1	Maintenance report is prepared in line with organisation guidelines.
		4.2	Maintenance requirements to appropriate area are escalated as required.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to determining and actioning network problem.

Client problem may include:

- inability to access network
- inability to print
- inability to input data
- decrease throughput
- error messages
- loss of power
- inability to access files and folders

Basic repairs to network may include:

- replacing disk drives
- repositioning network cards
- installing disk drives
- installing and reconfiguring printer
- replacing I/O devices
- reconfiguring network

Guidelines and procedures may include but are not limited to:

- security procedures
- logged call procedures
- client liaison policy
- preventive maintenance and diagnostic policy
- maintenance agreements
- warranties
- contracting arrangements relating to Information Technology purchasing

Components may include:

- monitors
- printers
- processors
- disk drives
- network cards
- software

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to determine and action network problem in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of common network problems and their solutions
- determine and comply with service agreements
- document network related problems and determine the appropriate solution within one's scope of responsibility
- determine and access the necessary resources required to complete tasks
- solve the client problem or escalate it according to organisational guidelines
- perform installation and maintenance tasks to specifications
- network is maintained with minimal disruption to clients
- work safely and comply with enterprise and industry guidelines and procedures

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- enterprise information relating to logging calls, contracting and maintenance arrangements
- inventory processes
- common network problems and their solutions
- troubleshooting procedures
- technical support agreements
- network system
- types of components and their features
- manufacturers' maintenance specifications
- Occupational Health and Safety guidelines
- preparing maintenance report
- diagnostic testing
- relevant tools and equipment to conduct maintenance activities
- customer service
- storage and disposal of components
- industry regulations and codes of practice

Skills
The ability to:

- respond effectively to customer requests
- assess and determine nature of complaint
- determine service agreements
- solve problems
- conduct diagnostic tests
- use tools and equipments
- carry out maintenance procedures
- analyse and rectify faults
- communicate effectively
- provide excellent customer service
- keep inventory of components
- work safely
- comply with procedures and guidelines
- store and/or dispose of components

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant resources
- enterprise guidelines and procedures
- industry regulations and codes of practice
- manufacturers' specifications

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIGEN3102A: Interpret and use manuals and specifications

Competency Descriptor: This unit deals with the skills and knowledge required to effectively interpret specifications and manuals to achieve required objectives/guidelines and applies to individuals working in the information technology industry/sector.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Identify and access manuals, specifications and drawings	1.1 Appropriate manuals, specifications and drawings are identified and accessed to obtain the information required.
	1.2 Amendment status is clearly established to ensure the correct specifications and procedures are applied.
	1.3 Relevant sources of the manuals, specifications and drawings are identified and accessed in accordance with enterprise guidelines.
	1.4 Industry knowledge is updated and maintained to be kept informed of new publications and changes in relation to manuals, specifications and drawings.
2. Interpret information	2.1 Relevant chapter or section of manual or drawing is located in relation to the work to be carried out or the required information.
	2.2 Information is interpreted and procedures to be followed are accurately determined.
	2.3 Quality specification for specific processes and related systems are interpreted.
3. Apply information	3.1 Work steps are correctly identified in accordance with manual or specification procedures.
	3.2 All correct sequencing and adjustments are interpreted in accordance with information contained in industry manuals or specifications.
	3.3 Measurements and calculations are correctly applied based on information obtained from drawings and specifications.

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4.	Amend manuals, specifications and drawings	4.1	Manual, specification or drawing changes and /or amendments are researched and documented correctly in accordance with statutory regulations and/or enterprise procedures.
		4.2	Authorized manual, specification or drawing changes and/or amendments are incorporated into existing documentations in accordance with enterprise guidelines and procedures.
5.	Store manuals, specifications and drawings	5.1	Enterprise procedures on storage and retrieval of manuals, specifications and drawings are identified and followed.
		5.2	Manuals, specifications or drawings are stored appropriately to ensure prevention of damage, ready access and updating of information when required, in accordance with regulatory and/or enterprise procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to interpreting and using manuals and specifications.

Documents may include:

- manufacturer specifications
- enterprise operating procedures and guidelines
- product manufacturer operating manuals
- customer requirements
- industry regulations
- industry/workplace codes of practice
- drawings and plans
- Occupational Health and Safety guidelines

Sources of information may include:

- product manufacturer
- industry publications
- Internet
- industry professional bodies
- newsgroup
- vendors and suppliers
- enterprise

Specifications and procedures may include:

- installation procedures
- maintenance procedures
- operating procedures
- safety guidelines

Documentation type may include:

- paper-based
- computer based media
- electronic
- microfiche

Amendments and changes may include:

- new procedures
- changes to reflect new technologies
- adjustments to drawings and plans
- improvements to and upgrading of existing processes/products
- adjustments to reflect compliance with changes in regulations

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to interpret and use manuals and specifications in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate understanding of specialised knowledge with depth of components, systems and industry documentations
- identifying and accessing manuals, drawings, circuits or specifications of tooling, equipment or systems
- interpreting manuals, drawings, circuits or specifications of tooling, equipment or systems
- applying information in manuals, drawings, circuits or specifications of plant, tooling, equipment or systems
- storing manuals, drawings, circuits or specifications of tooling, equipment or systems
- making authorized changes/amendments to manuals, specifications and drawings

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- accessing and interpreting information from industry manuals and specifications, including paper-based, microfiche or computer based media, relating to work activities, including determination of manual amendment status, knowledge of manual structures and locating relevant information/instructions for work activity
- amending industry manuals and specifications to reflect current/approved amendment status
- identifying and interpreting information from drawings and diagrams in installation/maintenance manuals, including component scaling, section, assembly, location, drawing applicability and amendment status from the title block
- correct handling and storage of drawings, manuals and industry media, i.e. microfiche and digital formats
- calculating allowable dimension variations on a component from information in drawing title blocks and drawings

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- calculating dimensions from drawings for the purpose of manufacturing aircraft components and hardware
- industry terminology and symbols
- relevant Occupational Health and Safety regulations/requirements
- relevant sources of information
- product manufactures
- types of manuals, specifications and drawings
- industry codes of practice
- relevant industry regulations

Skills
The ability to:

- identify and access relevant sources of information
- access and interpret manuals, specifications and drawings
- store documentations
- apply information from manuals, specifications and drawings
- communicate effectively
- recognize industry symbols and terminology
- perform measurements and calculations based on drawings
- make authorized changes and amendments to drawings/documentations

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- manuals, specifications and drawings
- access to sources of information

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

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ITINET1412A: Connect internal hardware components

Competency Descriptor:

This unit deals with the skills and knowledge required to connect internal hardware components to specifications and applies to individuals operating in the information and communication technology industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine new components required	1.1	Close interaction with client is established and client requirements are determined.
		1.2	Client requirements are documented and passed on to supervisor according to procedures and guidelines.
2.	Obtain components	2.1	Vendors are contacted and technical specifications are obtained.
		2.2	Recommendations are clearly documented and provided to supervisor within established timeframe.
3.	Install components	3.1	Components are installed with minimum disruption to clients following organisational guidelines and manufacturers specifications.
		3.2	Components are installed, configured and tested in accordance with installation procedures and organisational requirements
		3.3	System is optimised to meet organisational need.
4.	Provide instruction to meet new requirements	4.1	One to one instruction to client is provided as required in conformance with procedures.
		4.2	Client evaluation and feedback are obtained to ensure requirements of client are met.

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RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to connecting internal hardware components to specification and applies to all individuals in the information technology industry.

Optimisation tools may include:

- standard configuration tools and programs provided with component, operating system and third party products

Organisation variables may include but are not limited to:

- configuration procedures
- contracting arrangements relating to Information Technology purchasing
- technical manuals(in-house, product and vendors)

Internal components may include but are not limited to:

- motherboards
- CMOS Battery
- Central Processing Unit (CPU)
- CD and DVD drives
- interface cards
- drives
- fax/modem cards
- RAM upgrades
- CPU upgrades

Applications may include presentation applications contained in:

- Microsoft Office,
- Lotus Suite,
- Claris Works
- Star Office
- other similar applications

Keyboarding speed will vary according to different organisational requirements and different job roles within an organisation. The keyboard technique will be in line with OHS requirements for safe use of keyboards.

Command systems:

- Command line
- Graphical User Interface

Storage medium/disk may include but are not limited to:

- diskettes
- CDs
- zip disks
- local HDDs
- remote HDDs

Hardware may include:

- personal computers
- networked systems
- personal organisers
- communications equipment

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Organisational variables may include but are not limited to:

- availability of system to be optimised
- level of complexity of technical manuals (in-house or vendor)
- contracting arrangements relating to Information

Technology purchasing

- client support documentation
- IT policy and procedures relating to service levels and installation

OH&S considerations may include:

- company requirements
- statutory requirements
- vendor requirements

Ergonomic and environmental factors must be considered during the demonstration of this competency.

Documentation and reporting documentation for version control may follow ISO standards:

- audit trails
- naming standards
- version control
- project management templates and report writing styles will vary according to organisational approach
- information gathering processes may have associated templates

Client user may include:

- department within the organisation
- third party

The relation and ease of access will vary.

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to correctly connect internal hardware components according to vendor and technical specifications in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- perform tasks to specification
- observe security procedures
- demonstrate the ability to follow installation procedures
- interpret job specifications
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

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(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- ITICOR0021A Apply Occupational Health and Safety procedures

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- detailed knowledge of the system's current functionality
- broad knowledge base of quality assurance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- software packages supported by the organisation
- operating systems supported by the organisation
- understanding systems, technical
- pre-requisites needed for component installation
- vendor specifications and requirements for component installation
- organisation's network linkage
- set up and configuration procedures
- detailed knowledge of the operating system
- detailed knowledge of installation procedures
- broad knowledge base of systems diagnostic software
- broad knowledge base of input/output, storage and processing devices

Skills
The ability to:

- apply problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives
- exhibit plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- display teamwork skills involve the contribution to solutions and goals of a non-routine or contingency nature.
- group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts
- demonstrate interpersonal skills for a range of client/vendor levels
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- demonstrate questioning and active listening for a range of client/ vendor levels
- provide customer service for internal and external clients
- deliver one to one instruction
- display literacy skills in regard to interpretation of technical computer installation manuals

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- a number of hardware components

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(5) Method of Assessment

Competence in this unit may be assessed using formative assessment to ensure consistency of performance in a range of contexts.

Assessment of this unit of competence could include review of documents developed by the candidate. Questions related to the performance criteria and directed to the candidate, peers and business client will assist in assessing competence. Observation of skills will assist in the collection of evidence.

Simulated activities must closely reflect the workplace.

Peers and supervisors must be available to give information on the extent and the quality of contribution made.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1443A: Run standard diagnostic tests

Competency Descriptor: This unit deals with the skills and knowledge required to conduct diagnostic tests on a range of platforms and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Operate system diagnostics	1.1 Program is run according to specification and organisation's guidelines.
	1.2 System is configured as indicated by diagnostics using the appropriate procedures.
	1.3 Preventive maintenance is carried out in line with organisation guidelines.
2. Scan system for viruses	2.1 Virus protection is maintained in line with policies and procedures.
	2.2 Identified virus is promptly reported to supervisor.
	2.3 Virus is removed and information is accurately documented.

RANGE STATEMENT

This unit applies to activities associated with essential operations linked to conducting diagnostic tests for a range of platforms.

Diagnostic tools may include:

- SCSI Probe
- Reedit
- Apple Errors
- Disk First Aid
- Conflict Catcher
- Tech Tool Lite

Platforms may include but are not limited to:

- stand alone computer
- networked system
- server

Preventative maintenance may include:

- find and shutdown spy-ware
- remove obsolete files
- remove error producing duplicate file
- remove hazardous junk

Virus protection software may include:

- Norton Antivirus
- McAfee Antivirus
- Sophos Anti-Virus
- GFI Mail Security

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to conduct diagnostic tests on a range of platforms according to preventive maintenance and diagnostic policy and to correctly identify the root cause of the problem in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- application of preventative maintenance procedures
- scanning for virus
- removal of virus from system
- proper use of diagnostic tools
- application of documentation and reporting procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- types of diagnostic software and hardware
- back-up procedures
- system configuration
- organisation's security procedures
- hardware maintenance
- anti-virus protection
- preventative maintenance procedures
- operating principles of diagnostic tools

Skills
The ability to:

- use diagnostic tools
- apply maintenance procedures
- carry out proper documentation and reporting
- scan for virus
- remove virus

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant diagnostic tools
- relevant guidelines

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(5) Method of Assessment

Competency shall be assessed while work is undertaken with little or no supervision. Work is undertaken with a great degree of autonomy or as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT0103A: Create user and technical documentation

Competency Descriptor:

This unit deals with the skills and knowledge required todefine and document reference material to use, support and maintain system and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine documentation standards and requirements	1.1	Standards for documentation are determined from overall project documentation standards and industry standards.
		1.2	Documentation types and design templates are identified and agreed with higher authorities.
		1.3	Authors are informed of the standards and any technical resources/materials/manuals to support documentation.
2.	Produce technical software documentation	2.1	Technical documentation is recorded in line with project documentation standards.
		2.2	All supporting technical information such as the architecture and detailed project plan are clearly and accurately referenced.
		2.3	Modification and maintenance requirements are clearly documented to documentation standards.
		2.4	Documentation is understandable to programmers as a stand alone document.
3.	Create client user documentation	3.1	Developed software's operational procedures are clearly and coherently documented in non-technical jargon.
		3.2	Documentation is aligned with client requirements to support ease of use.
		3.3	Documentation is written in clear, coherent and concise plain English and logically sequenced and cross-referenced.

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4.	Obtain endorsement/sign-off	4.1 Developed documentation is reviewed by target audience.
		4.2 Changes are made according to target audience feedback.
		4.3 Documentation is submitted for higher authority sign off.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to creating user and technical documentation and applies to individuals in the information and communication technology industry.

Documentation standards may include but are not restricted to:

- policy relating to sign-off, storage, distribution, revision
- ISO/AS standards, organisational standards, project standards
- tools for documenting eg. word processin g packages, desktop publishing packages.

Documentation may include but are not limited to:

- technical manuals
- user manuals
- policy and procedure manuals
- training materials in either hard copy, electronic copy, on-line help, Internet/intranet

Style of templates will vary according to:

- type of documentation
- tools used to undertake documentation

Development methods/tools will vary from the traditional Systems Development life cycle with little or no formalisation to a very well structured CASE tool.

Documentation and reporting may include:

- audit trails
- naming standards
- version control

Occupational Health and Safety requirements include:

- company requirements
- statutory requirements
- vendor requirements.

Ergonomic and environmental factors must be considered during the demonstration of this competency.

Organisational standards may be based upon formal, well -documented methodologies or are non-existent. Best practice examples from industry should be used for training delivery purposes.

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability clearly and coherently document client and technical information in a manner, which is accepted by the target audience as applicable and useable in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- perform tasks to specification
- use software tools effectively
- demonstrate the ability to navigate desktop environment
- interpret job specifications
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- ITICOR0231A Operate a personal computer
- IITCOR0241A Operate a word processing application (basic)

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current business practices in relation to preparing reports
- detailed knowledge of documentation practices and standards
- broad knowledge base of quality assurance practices
- broad general knowledge of the client business domain
- general OH&S principles and responsibilities
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- broad knowledge base of vendor product directions

Skills
The ability to:

- employ problem solving skills for a defined range of predictable problems
- display report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- use plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- exhibit technical writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- utilise comprehension skills relevant to technical materials

(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- project specific resources and documentation

(5) Method of Assessment

Assessment of this unit of competence could include review of performance of the candidate. Questions related to the performance criteria and directed to the candidate, peers and business client will assist in determining competence. Observation of skills will assist in the collection of evidence.

Competence in this unit needs to be assessed using formative assessment to ensure consistency of performance in a range of contexts.

This unit has importance to a range of Information Technology services and could therefore be assessed in a holistic manner with other competencies.

Simulated activities must closely reflect the workplace.

Assessment must be in accordance with the performance criteria.

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(6) Context of Assessment

This competency can be assessed in the workplace or in a simulated environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1753A: Administer network peripherals

Competency Descriptor: This unit deals with the skills and knowledge required to manage a networked peripheral environment in order to provide services to client users and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Install peripherals to a network	1.1	Location of peripherals is planned to provide appropriate services to client users and to take into consideration Occupational Health & Safety factors.
		1.2	Peripherals are connected to network using vendor approved method and/or technology.
		1.3	Peripherals are connected to computers in the network using parallel, serial or other direct connection methods.
		1.4	Peripherals, accessories or upgrades to printers such as memory or high volume paper trays are added.
		1.5	Peripherals are tested for correct operation.
2.	Configure peripheral services to manage peripherals	2.1	Peripherals services are installed to manage local and network connected peripherals.
		2.2	Meaningful names for peripherals and/or queues are used.
		2.3	Security and access are configured to allow appropriate users to make use of peripherals.
		2.4	Workstation peripherals facilities are configured to allow peripheral with popular operating systems and user applications.
3.	Administer and support peripheral services	3.1	Control queues are assigned priority.
		3.2	Network peripherals management software is used that is either supplied by peripheral vendor, or included as part of the network operating system, or supplied by third parties.
		3.3	Templates are created for use on the network.
		3.4	Maintenance schedules, usage logs and cost centre usage statistics are developed.

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	3.5	Capacity to use peripheral services from their application or workstation is demonstrated to users.
4. Troubleshoot common problems	4.1	Regular maintenance schedule is carried out as recommended by peripheral manufacturer.
	4.2	Consumables and other components are replaced when due.
	4.3	Other peripheral mishaps and malfunctions are fixed.
	4.4	Peripherals usage and/or traffic are monitored and additional peripherals are recommended when needed.
	4.5	Failure of peripheral services is determined and rectified.

RANGE STATEMENT

This unit applies to activities associated with essential operations linked to administering network peripherals.

Peripherals may include:

- servers
- network cards
- bridges
- modems
- printers
- routers and gateways
- hubs and repeaters

Network may include but not limited to:

- large and small LANs
- national and international WANs
- the Internet
- the use of the PSTN for dial up modems only, private lines, data and voice

Connectivity may include but not limited to:

- serial
- parallel
- Ethernet
- Appletalk

Printers may include but not limited to:

- laser printers
- ink jet
- mono or colour

Occupational Health and Safety requirements include:

- company requirements
- statutory requirements
- vendor requirements

Ergonomic and environmental factors must be considered during the demonstration of this competency.

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EVIDENCE GUIDE

Assessment must confirm knowledge of peripheral technologies, how network peripherals (hardware and software) are installed and configured and must confirm the ability to maintain networked peripherals in working order in accordance with the performance criteria and the range listed within the range of variables.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- compliance with organisational policies and procedures
- perform all tasks in accordance with standard operating procedures
- perform maintenance, installation and configuration tasks to specification
- safe and effective operational use of all resources
- demonstrate understanding of network technologies and industry practices
- demonstrate planning and management skills
- compliance with security and access procedures
- demonstrate usage of peripherals to users
- develop administrative and operational procedures
- interactively communicate with others to ensure safe and effective workplace

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain, business function and organisation
- degree of stakeholder involvement
- specific knowledge of different kinds of peripherals
- networking technologies with broad knowledge of general features and capabilities incorporating substantial depth in some areas
- maintenance and installation procedures for peripherals

Skills
The ability to:

- communicate effectively
- read and interpret technical information
- write detailed and technical reports
- analyse and evaluate information
- conduct questioning and listen actively in order to elicit information
- solve problems
- demonstrate project planning skills in relation to setting benchmarks and identifying scope
- follow installation procedures
- repair and maintain peripherals

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- a range of peripherals
- networked system

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1483A: Provide network systems administration

Competency Descriptor: This unit deals with the skills and knowledge required to technically manage elements of a network and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Provide client access and security	1.1 Log-ons, passwords and applications file access are provided and documented in line with organisational security requirements.
	1.2 Records of client accounts are evaluated in line with policies and procedures.
	1.3 System integrity and security are maintained in accordance with organisation policies and procedures.
	1.4 Virus protection is used in line with organisation recommendations.
2. Input into and disseminate disaster recovery plan	2.1 Input is provided into disaster recovery plan.
	2.2 Disaster recovery plan is provided to clients as required.
3. Monitor network performance	3.1 Diagnostic tests are performed using the correct procedures.
	3.2 Diagnostic information is analysed and acted on in line with organisation guidelines.
	3.3 Software usage is monitored using the appropriate methods.
	3.4 Illegal software is immediately deleted from the system and reported to the relevant personnel.
	3.5 Hardware response time is monitored using the appropriate methods.
	3.6 Methods for improving efficiency are determined and acted on according to organisation guidelines.

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RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to providing network systems administration.

Hardware may include:

- personal computers
- peer-to-peer networks
- servers

Software may include:

- licensed applications
- in-house developed software
- diagnostic software

Client user may include:

- a member of the organisation
- a department within the organisation
- the entire organisation
- an external party

Diagnostic tools may include:

- Dell Diagnostic Hard Disk
- Dell Utility Configuration CD-ROM

Organisation policies and procedures may include but are not limited to:

- security procedures
- storage and retrieval of product licences
- storage of Information Technology equipment and documentation
- technical manuals (in-house, product and vendors)
- notification on illegal software
- preventive maintenance and diagnostic policy
- virus removal policy
- disaster recovery plan

Disaster recovery plan may include:

- back-up procedures
- recovery procedures
- off-site storage of back-up disks
- maintaining system security
- anti-virus protection

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EVIDENCE GUIDE

Assessment must confirm competence in sustaining the operation of the network through maintenance of network integrity and the performing of diagnostic tests. Assessment must also confirm competency in contributing to the formulation of a disaster recovery plan and providing the client with an optimised network that complies with organisational guidelines.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- maintain system integrity and security
- ensure compliance with copyright and licensing policies
- contribute to the formulation of disaster recovery plans
- collect and analyse information
- monitor system performance and implement processes for optimisation of use

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- technical aspects of the network
- organisational access and security procedures
- software copyright responsibilities
- operating systems supported by the organisation
- operating system's functions and basic features
- organisational procedures for protection against and elimination of computer viruses
- advanced knowledge of software features supported by the organisation
- security and network guidelines/procedures
- policy and procedures for deleting, restoring and archiving of files
- approaches to back up and restoring computer data
- disaster recovery policy
- procedures for creating logons
- file access
- available in-house and vendor support
- Occupational Health and Safety legislation relating to the use of equipment

Skills
The ability to:

- interpret technical manuals
- give one to one instruction
- use questioning and active listening to convey and clarify information
- use a range of client needs assessment methods
- convey and clarify complex information
- apply customer service skills in a range of contexts at various levels
- apply diagnostic skills

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- networked system
- diagnostic tools

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1463A: Install software to networked computers

Competency Descriptor: This unit defines the skills and knowledge required to plan, manage and support the installation of software to networked computers and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine client's software or software upgrade requirements	1.1	Client's software requirements are assessed in line with current application and operating system.
		1.2	Client's requirements are evaluated in line with organisation guidelines, corporate purchasing, licensing arrangements and budget.
2.	Obtain software or software upgrade	2.1	Vendors are contacted and technical specifications are obtained.
		2.2	Recommendations are documented and provided to appropriate personnel.
		2.3	Licensing requirements and security issues are determined and recorded.
3.	Install software or software upgrade	3.1	Upgrades are installed to meet needs as recommended including management of existing data.
		3.2	Procedures are followed so that clients experience minimal disruption.
		3.3	Software licences and manuals are stored according to organisation guidelines.
4.	Determine and provide instruction and support	4.1	Client instruction requirements are determined and are documented.
		4.2	One to one instruction to client is provided as required.
		4.3	Group training to meet client requirements is determined and referral is made.
		4.4	Client evaluation and feedback is obtained to ensure client training and support requirements are met.

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RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to installing software to networked computers.

Hardware includes:

- personal computers
- peer to peer networks
- client servers (include LAN and exclude WAN)

Operating system include:

- stand-alone PC systems
- network operating systems

Organisation variables may include but are not limited to:

- contracting arrangements relating to purchasing Information Technology
- security procedures
- storage and retrieval of product licences
- storage of software applications and documentation
- technical manuals(in-house, product and vendors)
- configuration procedures

Software may include but are not limited to:

- commercial software applications
- organisational specific software
- word processing
- spreadsheet
- database
- graphic
- mail
- communication packages
- presentation functionalities

Client user may include:

- a member of the organisation
- a department within the organisation
- the entire organisation
- an external party

EVIDENCE GUIDE

Assessment must confirm the ability to plan, manage and support the installation of software to networked computers to sustain network performance in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- evaluate and assess client software requirements
- source and install software
- compliance with organisation security and licensing guidelines
- provide appropriate support and training
- complete tasks to specification
- carry out proper documentation and reporting procedures

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- technical systems
- organisational contracting procedures and responsibilities
- organisational security procedures
- network linkages
- set up and configuration procedures
- operating systems
- current industry accepted network protocols
- current industry accepted network hardware and software products with broad knowledge of general features and capabilities

Skills
The ability to:

- solve problems
- demonstrate evaluation and report writing skills involving analysis
- provide one to one instruction
- use questioning and active listening to convey and clarify complex information
- interpret general and technical workplace documentation
- install software

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- networked system
- a range of software applications

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

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ITIDAT2903A: Install and optimise system software

Competency Descriptor:

This unit deals with the skills and knowledge required to apply aspects of system optimization and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine operating systems requirements	1.1	Operating system requirements are determined and documented in accordance with guidelines.
		1.2	Requirements of clients are evaluated in line with organisation guidelines, corporate, licensing arrangements and budget.
2.	Obtain operating system	2.1	Vendors are contacted and technical specifications are obtained using the appropriate channels.
		2.2	Recommendations are documented and provided to appropriate personnel.
		2.3	Licensing, hardware and security requirements are determined and followed.
3.	Install and optimise operating system	3.1	Operating system is installed, configured and tested in accordance with installation procedures and organisational requirements.
		3.2	System to meet organisational requirements is optimised.
		3.3	System is documented according to organisational requirements.
		3.4	Installation is conducted using the correct procedures with minimal disruption to clients.

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4.	Provide instruction to meet new software requirements	4.1 One to one instruction to the client is provided as required.
		4.2 Client evaluation and feedback are obtained to ensure requirements of client are met.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to applying aspects of system optimisation and applies to individuals operating in the information and communication industry.

Hardware includes:

- personal computers,
- networked systems,
- personal organisers,
- communications equipment

Applications may include presentation applications contained in:

- Microsoft Office,
- Lotus Suite,
- Claris Works
- Star Office or other similar applications

Organisational variables may include but are not limited to:

- availability of system to be optimised;
- level of complexity of technical manuals,
- in-house or vendor; contracting arrangements relating to Information Technology purchasing;
- client support documentation;
- IT policy and procedures relating to service levels and installation

Software may include but are not limited to:

- operating systems include stand alone PC systems and network operating systems
- commercial software applications
- organisational specific software
- word processing, spreadsheet, database, graphic, mail, communication packages and presentation functionalities
- licensing options

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install and improve system performance with minimum disruption to clients in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- perform tasks to specification
- use software tools effectively
- demonstrate the ability to carry out installation procedures
- interpret job specifications
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

(2) Pre-requisite Relationship of Units

- ITICOR0231A Operate a personal computer
- ITINET1372A Install software application

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- information Technology infrastructure
- understanding systems, organisational and technical
- detailed knowledge of the system's current functionality
- functions and features of operating systems supported by the organisation
- organisation's network linkage
- set up and configuration procedures
- current industry accepted hardware and software products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- software packages supported by the organisation
- pre-requisites needed for system software installation
- vendor specifications and requirements for installation
- broad general knowledge of the client business domain
- broad knowledge base incorporating theoretical concepts of systems software
- broad general knowledge of systems diagnostic software

Skills
The ability to:

- solve problem solving skills for a defined range of predictable problems
- analyse, evaluate and present information
- write reports
- work in teams work and display responsible workplace interactions
- convey information clearly
- interpret technical computer installation manuals
- use diagnostic tools
- install software

(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- personal computer/networked system

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(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Simulated activities must closely reflect the workplace.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1683A: Maintain equipment and software in working order

Competency Descriptor: This unit deals with the skills and knowledge required to follow maintenance procedures and to keep equipment and software operating and applies to individuals operating in the information technology industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Determine required equipment maintenance	1.1 Required equipment maintenance procedures are reviewed and understood.
	1.2 Service Level Agreements are identified and reviewed.
	1.3 Procedures that can be handled internally are determined.
	1.4 Required procedures are undertaken as per documentation requirements.
2. Diagnose and repair faults	2.1 Situation is assessed with a logical and efficient method to identify main cause of problem.
	2.2 Possible failures or performance degradation are tested with diagnostic tools or other examination techniques.
	2.3 Steps for cost effective resolution are identified and a timely solution to the problem is provided in accordance with enterprise guidelines.
	2.4 Long term analysis of recurring problems is undertaken.
	2.5 Any necessary components are obtained and repair to the equipment or software is completed in a timely manner so as to minimise disruption to the user.
3. Document maintenance carried out and make recommendations for future maintenance	3.1 Fault procedure documentation is completed in accordance with standards.
	3.2 Equipment register is updated if necessary to record changed components.
	3.3 Recommendations for prevention or early detection of same or similar equipment and software problems are made.

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RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to maintaining equipment and software in working order.

Service Level Agreements may include:

- business processes and requirements
- clearly specified and quantified service levels
- identified evaluation or audit of service levels
- workload and performance considerations
- expectations regarding servicing
- penalties

Maintenance options can include:

- on-site response
- remote diagnostics
- return to depot
- on-line realtime support
- web based support
- business hours only support
- 24x7 hours support
- telephone support
- second level support

Standards and procedures may include:

- maintenance guidelines and procedures
- industry regulations
- manufacturers' specifications
- financial control mechanisms
- procedures for communication with clients
- dispute resolution procedures
- modification procedures
- processes for determining size and cost of solutions

Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory requirement
- vendor requirements
- ergonomic requirements

Help desk and maintenance structures may include:

- call centre or a general contact point which then calls a supplier or other technician
- unit staffed by technicians capable of solving the problem
- contact point which then calls in external contractors

Documentation and reporting may include:

- manual system to monitor change requests
- computerized system to monitor requests
- record of logged call
- maintenance reports
- assessment of problems
- test results
- recommendations

Software and application may include:

- packaged software
- in-house developed software
- out-sourced development
- customized software

Clients may include:

- department within the enterprise
- business requiring an e-commerce solution
- existing customer
- new customer

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Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Possible groupware applications and servers include:

- Novell Groupwise
- Lotus Notes, Domino
- MS Exchange
- Netscape SuiteSpot
- Teamware Office
- email applications
- group calendars
- collaborative writing systems
- shared whiteboards
- decision support systems
- application/web servers; BEA Weblogic Servers, IBM VisualAge and WebSphere, Microsoft Host Integration Server, NetDynamics, Netscape Application Server
- email Servers
- file & print Servers
- FTP Servers
- proxy Servers

Languages may include:

- Java
- Java Script
- C++
- Visual Basic
- XML

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to correctly fix a range of technical problems and adhere to maintenance procedures in accordance with the performance criteria and the range listed within the range of variable statements

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(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- perform tasks to specification
- use diagnostic tools effectively
- demonstrate the ability to carry out maintenance procedures
- interpret job specifications
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

(2) Pre-requisite Relationship of Units

Pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- help desk and maintenance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the role of stakeholders and the degree of stakeholder involvement
- client business domain
- system's current functionality
- quality assurance practices
- operation and purpose of specified equipment
- operation of technical diagnostic tools
- escalation procedures
- problem management tools
- programming
- maintenance and repair procedures
- manufacturers' specifications
- Occupational Health and Safety requirements
- risk analysis

Skills
The ability to:

- analyse risks
- review maintenance procedures
- analyse training needs
- perform basic programming
- read and interpret technical manuals
- demonstrate technical diagnosis skills
- solve technical problems
- contribute to the development of strategic initiatives
- communicate effectively
- analyse, evaluate and present information
- produce relevant reports and documentation
- escalate technical maintenance problems
- perform maintenance procedures
- repair components
- provide cost effective solutions to problems

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- enterprise guidelines and procedures
- diagnostic testing
- inventory processes
- common equipment faults and corresponding solutions

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- technical environment with a variety of operational equipment
- technical manuals and tools
- relevant enterprise and industry guidelines and procedures

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT1473A: Provide advice to clients

Competency Descriptor: This unit deals with the skills and knowledge required to convey technical knowledge to clients and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Analyse client support issues	1.1 Logged requests are answered in accordance with organisation guidelines.
	1.2 Client support issues are investigated and documented in accordance with organisation guidelines.
	1.3 Previous logs are checked for similar problem reported by the same client or other clients.
2. Provide advice on software	2.1 Client requirements are confirmed.
	2.2 Advice is determined and provided or client is referred to appropriate party for further technical assistance.
	2.3 Advice is provided to client to overcome software problem in line with organisation guidelines.
	2.4 The appropriate manuals and help documentation are provided to client.
	2.5 Group or one to one instruction is provided as the need arises.
	2.6 Upgrade requirements or new software requirements are documented and recommendations are referred to supervisor/management.
3. Provide advice on hardware	3.1 Client requirements are obtained from documentation.
	3.2 Advice is provided to client to overcome hardware problem in line with organisation guidelines.
	3.3 The appropriate manuals and help documentation are provided to client.
	3.4 Group or one to one instruction is provided, as required.

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		3.5 Further requirements are documented, such as new equipment requirements and recommendations are referred to supervisor/management.
4.	Provide advice on network	4.1 Client requirements are obtained from documentation.
		4.2 Advice and support are provided to client to overcome network problem in line with organisation guidelines.
		4.3 Manuals and help documentation are provided to client.
		4.4 Group or one to one instruction is provided, as required.
		4.5 Further requirements are documented and recommendations are referred to supervisor/management.
5.	Obtain client feedback	5.1 Client evaluation and feedback are obtained to ensure client requirements are met.
		5.2 The client is allowed to perform function without assistance according to instructions.

RANGE STATEMENT

This unit applies to activities associated with essential operations linked to conveying technical information to clients.

Advice on hardware may include:

- use of laptop, notebooks and disk drives
- operations of scanners and printers
- reconfiguration of settings
- adjusting screen resolution

Advice on software may include:

- creation of templates
- generation of complex reports
- use of macros
- log on procedures and passwords

Support may include:

provision of manuals
identification of training needs
one on one training
referral to technical support

Identification of client requirements may involve:

- on-site examination
- interviewing client
- referring to similar complaints
- referring to vendor and product manuals

Organisation policies and procedures may include:

- client service standards
- IT training policy and procedures
- client liaison policy

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to convey technical knowledge to clients in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- determination of client requirements
- analysis of support issues
- provision of correct information to client
- compliance with organisation policies and guidelines
- escalating issues outside scope of responsibility to relevant party
- provide good customer service
- provide relevant manuals and documentation to clients
- carry out relevant documentation and reporting

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- operating systems supported by the organisation
- advanced features and functions of software
- information sources
- contract and service agreements with vendors
- operating systems functions and basic features
- hardware and software supported by the organisation
- features of different types of hardware
- advanced knowledge of software features supported by the organisation
- security and network guidelines/procedures
- available in-house and vendor support
- Occupational Health and Safety legislation relating to the use of equipment

Skills
The ability to:

- write macros and templates
- one to one instruction
- client needs assessment methods
- interpretation of technical manuals
- verbal and non-verbal communication skills to convey and clarify complex information
- apply customer service skills in a range of contexts at various levels

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)

(5) Method of Assessment

Competency shall be assessed while work is undertaken with little or no supervision. Work is undertaken with a great degree of autonomy or as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT1403A: Provide basic system administration

Competency Descriptor:

This unit deals with the skills and knowledge required to implement components of systems back-up, restore security and licensing in a stand alone or client server environment and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Record security access	1.1	Client requirements and clearance are obtained according to organisation guidelines.
		1.2	Security access password is issued to client.
		1.3	Security documentation and access to client is provided in line with organisation guidelines.
		1.4	Security access is recorded to maintain system integrity.
2.	Record software licences	2.1	Licensed software are identified.
		2.2	Records of licence number and location are maintained according to organisation guidelines.
		2.3	Personal computers and network are checked for illegal software.
		2.4	Use of illegal software is reported to supervisor.
3.	Carry out system back-up	3.1	Back-up procedure is determined according to organisation guidelines.
		3.2	Back-up is carried out at regular intervals according to organisation specifications.
		3.3	Back-up is recorded in line with organisation guidelines.
4.	Restore system back-up	4.1	Back-ups are restored.
		4.2	Restore procedure is determined according to the organisational guidelines.
		4.3	Restores are carried out under instructions from supervisor.

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		4.4	Restores are recorded in line with organisation guidelines.
5.	Document security access	5.1	Security access is documented as per clearance guidelines.
		5.2	Security access register is maintained in line with organisation guidelines.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to providing basic system administration and applies to individuals in the information and communication industry.

Hardware may include but not limited to:

- personal computers
- networked systems
- personal organisers
- communications equipment

Software applications may include presentation applications contained in:

- Microsoft Office,
- Lotus Suite,
- Claris Works
- Star Office

Organisational variables may include but are not limited to:

- availability of system to be optimised
- level of complexity of technical manuals,
- in-house or vendor; contracting arrangements relating to Information Technology purchasing
- client support documentation
- IT policy and procedures relating to service levels and installation
- security procedures
- system administration and back-up procedures
- storage, retrieval and type of product licences
- storage of Information Technology documentation
- register of licences
- IT security

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to perform systems back-up, restore and maintain correct usage according to licensing agreements in a stand alone or client server environment in accordance with the performance criteria and the range listed within the range of variable statements.

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(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- determination of access level
- provide password in line with policies
- maintain system free of illegal software
- apply back-up procedures as required
- restore system back-up
- carry out required documentation accurately

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- ITICOR0231A Operate a personal computer

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- broad general knowledge of software copyright responsibilities
- detailed knowledge of organisational security procedures
- broad general knowledge of operating systems supported by the organisation
- current industry accepted hardware and software products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- detailed knowledge of back-up procedures
- detailed knowledge of the system's current functionality
- one or more change management tools
- a broad knowledge base incorporating some theoretical concepts of system performance
- a broad knowledge of maintenance procedures
- a broad knowledge base incorporating some theoretical concepts of diagnostic tools

Skills
The ability to:

- maintain security of system
- identify legal software on system
- carry out system back-up
- restore system back-up
- carry out relevant documentation
- provide appropriate access

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(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- security guidelines
- back-up procedures

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Simulated activities must closely reflect the workplace.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT0193A: Migrate to new technology

Competency Descriptor:

This unit deals with the skills and knowledge required to transfer skills and knowledge to new technology and situations and applies to individuals operating in the information and communication technology industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Apply existing knowledge and techniques to new technology	1.1	Existing knowledge and techniques are applied to explore new technology.
		1.2	New technology acquired by the organisation is used with minimum disruption and in compliance with guidelines.
		1.3	Functions and features of new technology available to the organisation are readily employed to meet organisational requirements.
2.	Apply advanced functions of the technology to solve organisational problems	2.1	Specialised features of technology, software and hardware are utilised to solve organisational problems expeditiously.
		2.2	Advanced features and functions are used in a manner that exploits the full capacity of the new technology and follows operational procedures and guidelines.
		2.3	Sources of information are accessed to determine the full range of benefits of new technology .
3.	Apply new functions of upgraded technology	3.1	Specialised features of upgraded technology are used to solve organisational problems in a manner that conforms to policies and procedures.
		3.2	Upgraded technology is used for enhanced productivity and efficiency.

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RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to migrating to new technology and applies to individuals in the information and communication technology industry.

Hardware is limited to commercially available products. Hardware may include but are not limited to:

- single client platforms
- multi-client platforms

Database may include:

- simple collection of files accessed by programs
- complex Database Management System

Database Management System can be distributed or centralised, online, partitioned geographically or thematically distributed.
Client/server or legacy databases may include:

- DB2
- Tandem Enscribe
- IMS
- Informix
- Oracle
- SAP R/3
- Sybase
- NCR Teradata
- VSAM
- Object-oriented databases
- relational databases

Existing data may be already in a computer system or stored manually, includes but not limited to:

- names and addresses
- financial transactions
- employee records
- receipts
- despatches
- invoices
- cheques

Client may include:

- department within an organisation
- business requiring an e-commerce solution
- a third party

The relationship and ease of access will vary according to the client.

Software should be limited to commercially available products and specialised features are those identified in packages.
Software variables may include but are not limited to:

- data files obtained from Email, floppy disk, common drives
- commercial software applications such as word processing, spreadsheet, database, graphic, mail, communication packages and presentation functionalities
- format of data, ie. ASCII, application specific

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Information sources may include but are not limited to:

- trade magazines
- electronic media and communications
- product demonstrations
- industry trade fairs and conferences
- technical manuals
- supplier technical consultants

Data may include but are not limited to:

- established computer based files
- data from mixed sources and applications such as, mainframe hierarchical files, standard relational tables, and proprietary application file systems such as SAP

Documentation and reporting includes:

- maintaining standards of definition
- standards of format
- user access information

Information should be clear and written in such a way that it will be readily understood by the target audience.

Reports meet the specific output requirements and are presented in a logical and accessible manner.

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to transfer the application of existing skills and knowledge to new technology and advanced knowledge of generic applications is demonstrated on a minimum of three software applications in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- explore the scope of new technology
- demonstrate knowledge of new technology
- use new technology to full capacity
- enhance productivity by using new technology

(2) Pre-requisite Relationship of Units

- ITICOR0231A Operate a personal Computer

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current technology trends and directions in IT
- broad knowledge base of vendor product directions
- available sources of information regarding IT and new technology
- organisation strategic direction in relation to future IT requirements
- understanding systems, organisational and technical
- broad understanding with detail in some areas of operating systems features and functions
- software features and functions
- identify components of the business planning process relevant to the development of IT business solutions
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- broad general knowledge of the client business domain
- a basic knowledge of information gathering techniques

Skills
The ability to:

- use research skills for identifying, analysing and evaluating broad features of new technologies
- employ decision making involving discretion and judgement
- communicate verbally and non-verbally clearly, coherently and concisely
- provide customer service for internal and external interaction
- carry out questioning and active listening for conveying and clarifying meaning
- display literacy skills in regard to interpretation of technical manuals
- solving known problems in a variety of contexts
- general analytical skills in relation to known problems in a variety of contexts
- use general research skills in relation to readily available information

(4) Resource Implications

To demonstrate competence in this unit the candidate will need access to:

- workplace (actual or simulated)
- a data conversion plan
- an implementation plan
- if necessary a conversion program

(5) Method of Assessment

Competence in this unit may be assessed using formative assessment to ensure consistency of performance in a range of contexts.

Assessment of this unit of competence could include review of documents developed by the candidate. Questions related to the performance criteria and directed to the candidate, peers and business client will assist in assessing competence. Observation of skills will assist in the collection of evidence.

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Simulated activities must closely reflect the workplace.

Peers and supervisors must be available to give information on the extent and the quality of contribution made.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Lev el 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT2063A: Determine client business expectations and needs

Competency Descriptor: This unit deals with the skills and knowledge required to ensure the client business requirements are developed as a pre-requisite to designing the new/ additional system and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Specify context of business need or problem	1.1	The business need is fully understood by project team and client.
		1.2	Methods for gathering and collecting information are ensured to be cost effective and relevant, both to the project and client environment.
		1.3	System boundaries, scope and methodologies to be used are determined.
2.	Specify interested parties	2.1	People (especially the owner, sponsor and those that will contribute to defining the requirements and using the system) and roles of client users are identified.
		2.2	The physical requirements of the system are identified taking into account current system functionality, geography, environment, client user and cost constraints.
3.	Plan the requirements phase	3.1	Most appropriate way to obtain requirements information is decided on.
		3.2	Any questionnaires or material needed for workshops and interviews are developed and trialled.
		3.3	A workable and extensible administration system to cope with incoming data is prepared.
		3.4	An extensible Data Dictionary to be used throughout the project is prepared.
		3.5	Commitment and timing is agreed on by users and managers impacted by the plan.
4.	Gather requirements	4.1	Questionnaires are issued and participation in workshops and interviews has occurred as per the requirements plan.
		4.2	Collected data is evaluated and collation of the requirements is started.

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		4.3 Any gaps in knowledge or other requirements issues relevant to obtaining a satisfactory resolution are followed up.
		4.4 Views and requirements of key client users are identified and documented.
5.	Carry out preliminary analysis of information	5.1 All functional areas included by the project brief are covered in the analysis and meet the client's stated business expectations.
		5.2 All views and requirements are compared for commonalties in line with project brief.
6.	Resolve conflicts and develop consensus	6.1 Conflicting information is investigated and a single position is developed.
		6.2 The identified position is circulated for discussion with key client users according to agreed project scope.
		6.3 Consensus is gained with key client users subject to project brief and cost constraints.

RANGE STATEMENT

This unit applies to activities associated with essential operations linked to Determining clients business expectations and needs.

Clients may include:

- department within an organisation
- a business requiring an e-commerce solution
- organisation involve in partial or total system change

Factors affecting the administration of project include:

- size of project
- duration of project
- budget
- number of persons involved
- type of project (discrete or integrated)

Business solutions may include:

- integration of new solutions with existing infrastructure
- e-business solution
- total change of system

Source of information may include:

- change management plans
- project management plans
- current systems design plans
- business strategic plans

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Consulting techniques may include:

- interviews
- surveys
- focus groups
- chat room

Analysis techniques may include:

- gap analysis
- urgency and impact assessment
- statistical or other information gathering methodologies

Systems may include:

- legacy systems
- green field sites
- organisation wide system
- discrete system

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to produce a clear statement of business expectations and needs which include all critical business requirements and must confirm the ability to maintain coherence of all techniques across the elicitation, modelling, analysis and validation stages in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstration of sufficient knowledge of interview, investigation and documentation techniques
- use of cost effective and relevant methods to gather and collect information
- identification of relevant physical requirements of system
- application of satisfactory administrative process
- identification of the roles of stakeholders
- carry out through analysis and evaluation of information
- communicate effectively with others to achieve consensus
- resolution of conflicts
- apply relevant documentation and reporting procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- client business domain
- current industry system development methodologies
- current industry information gathering methodologies
- general features and capabilities of industry accepted hardware and software products
- degree of involvement of stakeholders and their specific roles
- quality assurance practices
- project planning
- risk management

Skills
The ability to:

- analyse, evaluate and present information
- solve complex problems
- manage time
- manage cost
- manage quality
- conduct research
- gather information
- work in a team
- manage project
- produce project brief/proposal

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- the business's current needs
- project requirements
- a client expectations brief
- the business's objectives
- information on a range of IT business solutions
- need access to the outcomes of the business analysis process

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time to allow the candidate to demonstrate the information gathering techniques and communications skills required in this unit and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT1423A: Provide one to one instructions

Competency Descriptor: This unit deals with the skills and knowledge required to convey technical information to an individual client for their specific use and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine client need	1.1	Appropriate questions are asked to determine client need.
		1.2	Client instruction requirements are determined.
2..	Organise instruction resources	2.1	Instruction requirements are sourced according to organisation guidelines.
		2.2	Instruction plan is determined from relevant manuals or documentation.
		2.3	Resources are prepared or obtained according to organisation guidelines.
3.	Provide appropriate instruction	3.1	Instruction and support are provided to client in line with procedures and guidelines.
		3.2	Instruction and support are documented according to organisation guidelines.
		3.3	Further requirements or training needs are referred to supervisor/management/technical area as required.
4.	Obtain client feedback	4.1	Client evaluation and feedback are obtained to ensure requirements of client are met.
		4.2	Client performs function unassisted according to instructions.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to providing one to one instructions.

Instructions may include:

- advice and support on a one-to-one basis
- provision of client documentation
- provision of manuals

Instruction does not include:

- delivery of formal accredited training or general classroom/workshop situations
- delivery to more than one individual

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Instruction on software supported by the organisation may include but not limited to:

- formatting spreadsheet
- creation of graphs
- setting up of word processing document for printing
- using an E-mail system
- browser server

Instruction on hardware supported by the organisation may include but not limited to:

- operation of printers
- setting of screen resolution
- formatting of disks
- reconfiguration of printers
- use of scanners

Further clarification of information may include:

- on site instruction
- question and answers
- active listening to client and other employees
- referring to technical area

EVIDENCE GUIDE

Assessment must confirm the ability to convey technical information to an individual client for their specific use in a clear, concise and coherent manner with the meaning of technical jargon fully explained in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- collect and evaluate information to determine client requirements
- determine, prepare and obtain resources required
- provide relevant instruction and support
- make necessary provisions to satisfy additional needs if required
- obtain and evaluate feedback
- carry out proper reporting and documentation procedures
- communicate effectively

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- principles of equal employment opportunities and anti-discrimination
- technical and organisational systems
- operating systems functions and features
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- escalation procedures
- hardware and software supported by the organisation
- Information Technology terminology
- telephone, fax and on-line functions and procedures
- work group procedures
- legislation governing equal opportunity
- anti-discrimination legislation
- in-house or vendor support available
- security and network guidelines/procedures
- Occupational Health and Safety principles and regulations

Skills
The ability to:

- provide excellent customer service
- make decisions involving discretion and judgement
- manage time for self and others
- solve problem in a variety of contexts
- use questioning and active listening for conveying and clarifying information
- interpret technical manuals
- determine client support requirements

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- manuals

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1564A: Action and complete change requests

Competency Descriptor: This unit deals with the skills and knowledge required to take change requests and carry out the change requirements.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Review change requests	1.1	Fault details are collected and reviewed from sources in accordance with organisational policies and procedures.
		1.2	Technical data is obtained from software traces, dumps, error messages and other information to assist in identifying change.
		1.3	The nature of the change is clarified with client user personnel where necessary in accordance with organisational policies and procedures.
2.	Modify system to accept changes	2.1	Details of selected system changes are reviewed against current and future business requirements.
		2.2	System changes are designed, coded, and documented according to standards and procedures.
		2.4	Equipment is installed in accordance with manufacturer's recommendation when changes involve hardware.
		2.5	Appropriate client user and technical documentation is revised to reflect system changes according to documentation and client user requirements.
		2.6	System changes are tested and completed according to current and future system requirements.
3.	Prepare and deliver training	3.1	Training is prepared to meet the training requirements of clients in using the changes.
		3.2	Training to clients to use the changes is delivered in accordance with organisational policies and procedures.
4.	Complete status evaluation	4.1	System effectiveness is evaluated to determine if maintenance activities should be minimised and replacement activities should begin.
		4.2	Recommendations on system effectiveness are documented for higher authority consideration in accordance with organisational policies and procedures.

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5.	Implement changes	5.1 Back up and recovery plan to protect against implementation failure is developed taking into account business continuity and criticality of information technology components.
		5.2 Training materials are updated to reflect changes and client user training requirements in accordance with organisational policies and procedures.
		5.3 Changes for acceptance into production system are reviewed against technical requirements in accordance with organisational policies and procedures.
		5.4 Changes are introduced into production system according to business requirements.
		5.5 Change requests and other system documentation are completed and updated in accordance with organisational policies and procedures.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to action and complete change requests.

Service Level Agreements (SLAs) should consider the following:

- business processes and requirements
- specify and quantify service levels
- identify evaluation or audit of service levels
- workload and performance considerations
- expectations regarding servicing
- penalties
- charge back to business units

Type of change may include:

- software change
- hardware change
- changes to applications
- minor request for a cosmetic change
- fixing a serious problem that stops the system functioning
- changes to systems

Client may include:

- individual
- a department
- an organisation
- a business requiring an e-commerce solution
- third party

Software and applications may include:

- packaged software
- customised software
- in-house development
- out-sourced development

Sources of fault details may include:

- change requests
- fault reports
- help desk reports
- error log

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Documentation and reporting considerations may include:

- documentation for version control may follow ISO standards
- audit trails, naming standards, version control, project management templates and report writing styles will vary according to organisational approach
- information gathering processes may have associated templates

Maintenance options may include:

- on-site response
- remote diagnostics
- return to depot
- business hours only support
- 24x7 hours support
- telephone support,
- real-time on line support
- second level support

Hardware may include:

- workstations, pcs: IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems
- bridges: 3Com, Compaq, CISCO, IBM
- modems: analog, cable, ISDN, DSL
- Servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Complex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, Cnet, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Cnet, Accton, As ante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron
- routers & gateways: 3Com, CISCO, D-Link, Intel
- file & print servers: Acer Altos, Aerocomm, Alpha Server, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- communication with stakeholders,
- dispute resolution and modification procedures
- processes for determining size and cost

Help desk and maintenance structures may include:

- a call centre or a general contact point that then calls a supplier or other technician
- a call centre staffed by technicians capable of solving the problem
- real-time on-line support
- web based support

Occupational Health and Safety issues may include:

- workplace environment and safety
- use and maintenance of tools and equipment
- handling and disposal of materials
- protective clothing and equipment
- removal of obstacles
- personal grooming and hygiene
- response to emergency, fire and accident
- security of documents, personnel and equipment

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to action and complete change requests in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of system functionality and capabilities, management systems and help desk and maintenance procedures
- accurate review and evaluation of fault details and change requests
- establish nature of changes and modification of system to accept change
- design, implementation and testing of changes following standard operating procedures
- prepare and deliver training to users relating to changes implemented
- complete evaluation of system effectiveness and making appropriate recommendations for improvements
- develop back up and recovery plan and maintain continuity of system
- implement and review changes against business requirements and in accordance with quality requirements
- complete and update relevant documentation and reports
- collaborate, communicate and negotiate with other parties
- compliance with regulatory, legislative and organisational standards, policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- help desk and maintenance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- role of stakeholders and the degree of stakeholder involvement
- the client business domain
- the system's current functionality
- quality assurance practices
- change management tools
- programming languages
- theoretical concepts of system testing
- documentation standards
- manufacturer's specifications
- hardware and software installation procedures
- organisational standards, policies and procedures
- industry standards and code of practice
- legislative and regulatory requirements

Skill
The ability to:

- solve problems
- participate in the development of strategic initiatives
- analyse, evaluate and present information
- provide solutions and goals of a non-routine or contingency nature
- apply group facilitation and presentation skills
- transfer and collect information and gaining consensus on concepts
- negotiate effectively
- produce technical reports
- apply change management skills
- maintain the continuity of IT operations and business functions
- provide excellent customer service
- review procedures
- work safely
- resolve conflicts
- conduct risk analysis
- apply training needs analysis skills
- apply programming skills

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant resources
- change request documentation
- physical system or network
- current business requirements
- documentation standards
- manufacturer's specifications
- organisational standards, policies and procedures
- industry standards and code of practice
- legislative and regulatory requirements

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 3	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET0073A: Relate to clients on a business level

Competency Descriptor:

This unit deals with the skills and knowledge required to formulate and implement small service level agreements and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Build and maintain business networks and relationships	1.1	Organisational standards and values are used in conducting business.
		1.2	Networks are used to determine and build business relationships in line with organisation guidelines.
		1.3	Organisational culture and service standards are used to develop and maintain positive business relationships.
2.	Plan to meet internal and external client requirements	2.1	Clients' needs are carefully researched, so they can be correctly met.
		2.2	Plans to achieve the quality, time and cost specifications agreed with clients are developed following established guidelines.
		2.3	Information on costs and resource allocation is accurately assessed and interpreted.
3.	Negotiate client support service costs	3.1	Cost negotiations are conducted within a designated time frame and in a manner likely to promote good business relationships.
		3.2	Clarification is sought promptly, where areas of uncertainty or disagreement occur.
		3.3	Proposed client support service is presented in a clear, concise and comprehensive manner to client.
		3.4	Client is in agreement with support service time frame and cost, or is referred to appropriate person for further negotiations.

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4.	Monitor, adjust and implement procedures to maintain client focus	4.1	Organisational systems and procedures are used to monitor progress in achieving client support service targets.
		4.2	Client feedback is sought and used to improve the provision of client support services.
		4.3	Adjustments to client support service are made based on feedback and in line with organisational policy.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to relating to clients on a business level and applies to all individuals in the information and communication technology industry.

Organisation policies and standards may include but are not limited to:

- client service standards
- client liaison policy
- service level agreement policy
- ethical work practices policies and procedures
- supplier list

Clients may include but are not limited to:

- internal and external clients
- new clients
- ongoing and/or future clients
- people from a range of social, cultural or ethnic backgrounds
- seniority of clients
- communication styles of clients

Occupational Health and Safety requirements include:

- company requirements
- statutory requirements
- vendor requirements

Ergonomic and environmental factors must be considered during the demonstration of this competency.

Documentation and reporting may include:

- audit trails
- naming standards
- version control

Client user may include:

- department within the organisation
- third party

The relation and ease of access will vary depending on the client user.

Tools may include but are not limited to:

- tools to document and present proposals
- tools to track and monitor service

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability through the formulation and implementation of small service level agreements to encourage clients to engage in further business and to successfully negotiate client support service provision and satisfy client requirements for client support service within quality, time and cost parameters in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- communicate information about work activities and processes
- receive and convey information accurately
- plan, implement and monitor activities
- carry out accurate research and analysis
- conduct negotiation skilfully
- demonstrate professionalism
- communicate effectively with clients
- record and document information

(2) Pre-requisite Relationship of Units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- some theoretical concepts relating to negotiation and business relationships, for example, when building and maintaining business networks and relationships
- current business practices in relation to preparing reports, for example, when monitoring, adjusting and implementing procedures to maintain client focus
- components of the client's business planning process relevant to the development of IT business solutions
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- broad knowledge base of vendor product directions, for example, when planning to meet internal and external client requirements
- broad general knowledge of the client business domain, for example, when monitoring, adjusting and implementing procedures to maintain client focus

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Critical Aspects of Evidence (Cont'd)

- broad knowledge base of quality assurance practices, for example, when monitoring, adjusting and implementing procedures
- a basic knowledge of information gathering techniques, for example, when building and maintaining business networks and relationships
- broad general knowledge of change management systems, for example, when monitoring, adjusting and implementing procedures to maintain
- client focus
- broad general knowledge of organisational policies on contracting, for example, when negotiating client support service costs
- organisational policies on external client relationships

Skills
The ability to:

- apply customer service skills in a range of contexts at various levels
- use problem solving for a broad range of unpredictable problems involving analysis, diagnosis, evaluation and the development of new criteria, knowledge or procedures, for example, when adjusting client support services based on feedback and in line with organisational policies
- display facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts, for example when determining and building business relationships
- use plain English, literacy and communication skills in relation to analysis, evaluation and presentation of information to clients
- exhibit teamwork skills involve the contribution to solutions and goals of a non-routine or contingency nature
- employ negotiation skills in relation to others applied to an undefined range of predictable problems
- interact with clients

(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)

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(5) Method of Assessment

Competence in this unit may be assessed using formative assessment to ensure consistency of performance in a range of contexts.

Assessment of this unit of competence could include review of documents developed by the candidate. Questions related to the performance criteria and directed to the candidate, peers and business client will assist in assessing competence. Observation of skills will assist in the collection of evidence.

Simulated activities must closely reflect the workplace.

Peers and supervisors must be available to give information on the extent and the quality of contribution made.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

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ITINET3133A: Supervise installation activities

Competency Descriptor: This unit deals with the skills and knowledge required to plan, schedule and supervise the installation of a range of network components and applies to individuals responsible for organising resources and monitoring work progress for installation activities.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan for installation	1.1 Client requirements are reviewed and confirmed with appropriate person(s) as required in accordance with organisational requirements.
	1.2 Security equipment/system to be installed is selected and resource requirements are identified, checked against work order and prepared for installation.
	1.3 Licensing requirements are identified and complied with in accordance with industry and legislative requirements.
	1.4 Site access and specific site requirements are identified and appropriate arrangements made as required in accordance with client and organisational requirements.
	1.5 Applications to relevant authorities are made to ensure access requirements of security equipment/system to communication connections are met at time of installation.
	1.6 Work order is prepared and contingencies are planned for to ensure client and organisational requirements are met in an efficient and effective manner.
2. Coordinate installation	2.1 Installation work is monitored to ensure compliance with Occupational Health and Safety, legislative and organisational requirements is maintained.
	2.2 Installation work is monitored against work schedules to ensure completion occurs within designated timeframes.
	2.3 Factors affecting the achievement of work order instructions are promptly identified and required variations to schedules are negotiated and agreed with appropriate person(s).

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		2.4 Work order is adjusted and modified as required to include new or changed details and is communicated in a timely manner to appropriate person(s) in accordance with organisational procedures.
		2.5 Established communication channels and processes are used to ensure an accurate exchange of information throughout installation activities.
3.	Check and document installation	3.1 Notification of completed installation is received and checked against work order, manufacturer's specifications and organisational requirements.
		3.2 Visual inspection of completed work is conducted to ensure installed equipment/system complies with safety and environmental legislation and is in accordance with organisational requirements.
		3.3 Commission and test results confirm that security equipment/system is fully operational and meets installation performance specifications and industry standards.
		3.4 Faults, errors or omissions are identified and prompt remedial action is determined and arranged with appropriate person(s) in accordance with organisational procedures.
		3.5 Completed documentation is accurate and is processed in accordance with legislative, industry and organisational requirements.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to addressing copyright requirements.

Appropriate person(s) may include:

- installer
- sub-contractor
- technician
- system administrator
- network manager
- team leader
- client

Client requirements may include:

- requirements as detailed in client brief
- system capabilities and functions
- equipment and/or system type
- equipment locations and positions
- installation schedules
- warranties/guarantees
- budget allocations

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Resource requirements may include:

- tools and equipment
- hardware and software components
- personal protective equipment
- communications equipment
- materials
- personnel
- transport
- training

Organisational requirements may relate to:

- legal and organisational operational policies and procedures
- operations manuals, induction and training materials
- insurance policy agreements
- client and organisational confidentiality requirements
- organisational goals, objectives, plans, systems and processes
- employer and employee rights and responsibilities
- own role, responsibility and delegation
- quality and continuous improvement processes and standards
- client service standards
- defined resource parameters
- OHS policies, procedures and programs
- emergency and evacuation procedures
- duty of care, code of conduct, code of ethics
- access and equity policy, principles and practice
- records and information systems and processes
- communication channels and reporting procedures

Software and application may include:

- packaged software
- in-house developed software
- out-sourced development
- customized software

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- File & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

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Site access and specific site requirements may relate to:

- access and egress points
- time of access
- access codes
- keys, passes, security clearance
- union requirements
- Occupational Health and Safety requirements
- building codes and regulations
- noise control

Work order information may relate to:

- work schedules
- completion dates
- job requirements and tasks
- specific client requirements
- access to site and specific site requirements
- resource requirements
- Occupational Health and Safety requirements
- compliance with relevant legislation
- budget allocations
- warranties and service information

Communication channels and processes may include:

- organisational networks
- formal communication pathways
- direct line supervision paths
- lateral supervision paths
- organisational communication protocols and procedures
- clear and concise use of technical and security terminology

Documentation may include:

- work logs
- equipment/system positioning
- section lists, zone lists, equipment lists
- cable identification
- fixings job cards
- adjustments to original cable plan

Communications connections may include:

- paper-based information
- direct line
- mobile phone line
- standard switch phone line
- radio
- mobile data
- packet radio

Contingencies may include:

- industrial disputes
- building delays
- public holidays and shut-down periods
- competing work demands
- technology/equipment breakdowns
- unforeseen incidents
- workplace hazards, risks and controls
- environmental factors (time, weather)
- non-availability of resource and materials
- budget constraints

Reasons for variations may include:

- changed client requirements
- changed installation requirements
- contingency factors

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to supervise maintenance activities in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- clearly identify job requirements and prepare efficient and realistic work schedules which allow for contingencies
- organise and allocate correct labour, tools, equipment and network component required for installation and make appropriate site access arrangements where required
- effectively monitor installation progress and make adjustments where required in order to minimise deviation from work schedule or budget constraints
- ensure installation work is conducted in compliance with applicable legislative, Occupational Health and Safety, industry and organisational requirements
- maintain clear communication with installer and client during installation activities and upon notification of work completion conduct a visual inspection to ensure installed equipment/system conforms to standards and specifications

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- job types
- standard industry time allocations for installations
- project planning
- contingency factors
- local conditions and travel routes
- scheduling methods
- building construction methods and types
- technical terminology
- skill requirements for the installation, testing and commissioning of security equipment/systems
- organisational and client confidentiality requirements
- duty of care
- communications connection requirements
- noise control requirements

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of: (Cont'd)

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the role of stakeholders and the degree of stakeholder involvement
- client business domain
- system's current functionality
- quality assurance practices
- operation and purpose of specified equipment
- operation of technical diagnostic tools

Skills
The ability to:

- communicate in a clear and concise manner
- relate to people from different social and cultural backgrounds
- read and interpret plans and specifications
- plan and supervise projects
- methodically organise, prioritise and schedule work tasks
- estimate resource requirements
- allocate work and resources
- solve problems
- supervise and evaluate work progress
- produce relevant reports and documentations

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- suitable worksite and resources
- relevant statutes and procedures
- assignment instructions, work plans and schedules, policy documents and duty statements

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

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ITINET1223A: Install and configure a network

Competency Descriptor: This unit deals with the skills and knowledge required to carry out installation of the network hardware and software and initial configuration of the network.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Confirm client requirements and network equipment	1.1 Existing network design documentation is reviewed to ensure it is current and complete.
	1.2 Network components, both hardware and software, that are required to be installed are identified.
	1.3 Equipment specifications are confirmed and availability of all components is ensured.
2. Install hardware	2.1 Work is planned in detail including sequencing of activities and prioritising so that work is completed efficiently and with minimal disruption to users.
	2.2 Installation of cabling and associated components is confirmed and is ensured to be in accordance with industry standards, building requirements for type of cable and bandwidth.
	2.3 Security clearance and time slot approval is gained from authorised personnel following the established procedures.
	2.4 Appropriate tools, equipment and material are identified and selected in accordance with work requirements.
	2.5 Server hardware is installed in accordance with organisational and industry standards.
	2.6 Workstation and other client hardware is installed in accordance with organisational and industry standards.
	2.7 Any other hardware components such as printers, routers, repeaters, gateways, etc are installed in accordance with organisational and industry standards.

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3.	Install software	3.1	Server software is installed in accordance with organisational or industry standards.
		3.2	Server software is configured in accordance with organisational policies and procedures.
		3.3	Workstation software is installed in accordance with organisational or industry standards.
		3.4	Workstation software is configured in accordance with organisational policies and procedures.
4.	Configure and test network	4.1	Any other software required for the network to operate is installed and configured following the established procedures.
		4.2	Hardware installation is tested to ensure that all components are functioning as expected.
		4.3	Network is tested to ensure it is functioning according to specification.
5.	Complete the work	5.1	Work is completed and appropriate personnel notified in accordance with enterprise requirements.
		5.2	Work area is cleared of waste, cleaned, restored in accordance with enterprise requirements.
		5.3	All wastes are disposed of in accordance with environmental safety guidelines.
		5.4	Tools and equipment are maintained and stored in accordance with manufacturers' specifications and enterprise guidelines.
		5.5	The required testing and quality checks are conducted to ensure that work is carried out to specifications and the necessary corrective measures are taken where problems exist.
6.	Document and sign off	6.1	Hardware and asset recording documentation is completed in line with organisational requirements.
		6.2	Personal computer boot up procedures and configuration are documented in accordance with organisational guidelines and procedures.
		6.3	Client and/ or higher authority sign off is gained.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing and configuring a network.

Clients requirements may include:

- addition of components to existing system
- upgrading of existing system
- installation of new system
- increasing the capabilities of the system

Network may include:

- small Local Area Network (LAN)
- large Local Area Network (LAN)
- data communication network
- voice and data communication network

Cables may include:

- fiber optics
- shielded twisted pair
- unshielded twisted pair
- coaxial cable
- sheathed cables

Software may include:

- in-house developed software
- software for individual component
- full suite of software for entire system
- packaged software from vendor

Work may include:

- installation for an office
- installation covering several offices
- building-wide implementation
- implementation at a specific site

Relevant authority may include:

- client
- network engineer
- system administrator
- network manager

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Operating system may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

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Tools may include:

- pliers
- screwdrivers
- cable testers
- drills
- soldering iron

Material may include:

- cables
- clamps
- solder
- screws
- tags and labels

Standard and procedures may include:

- enterprise guidelines and procedures
- industry standards
- manufacturers' specifications
- statutory regulations
- industry codes of practice
- Occupational Health and Safety requirements

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install and configure a network in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of network components, network configurations and operations of a network
- evaluate and determine work requirements from plans and work instructions
- effective reading and interpreting drawings to locate or identify nominated features or functions
- verifying correct installation of cables and associated components
- demonstrate the ability to install and configure network components to specifications
- use tools correctly and follow procedures correctly
- comply with industry and enterprise standards and procedures
- adhere to Occupational Health and Safety regulations
- complete required documentation and reporting

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain, business function and organisation
- networking technologies
- Occupational Health and Safety requirements in relation to work safety, environmental factors and ergonomic considerations
- transmission technologies and protocols
- manufacturers' specifications on installation of components
- configuring components
- enterprise policies and procedures
- industry standards
- statutory regulations
- tools and materials
- industry accepted installation procedures

Skills
The ability to:

- read and interpret drawings
- interpret technical manuals
- communicate effectively
- use tools and equipment safely and correctly
- identify and install hardware components
- identify and install software
- perform configuration of components
- evaluate and assess best solution from client requirements
- plan and organize work
- perform testing and quality checks
- perform reporting and documentations to requirements

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- network design documentation
- equipment specifications
- tools and materials
- network components
- enterprise and industry standards and procedures

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1453A: Install network hardware to a network

Competency Descriptor: This unit deals with the skills and knowledge required to plan manage and support the installation of new components in a network.

Competency Field: Information technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Determine hardware requirements of clients	1.1 Client's hardware requirements are assessed in line with current application and operating system.
	1.2 Requirements are analysed against Local Area Network limitations and organisational requirements.
	1.3 Client requirements are evaluated in line with organisational guidelines, corporate purchasing, licensing arrangements and budget.
2. Obtain hardware	2.1 Vendors are contacted and technical specifications are obtained in accordance with guidelines.
	2.2 Hardware is evaluated/tested in line with client and organisation requirements.
	2.3 Recommendations are documented and provided to appropriate personnel following the correct procedures.
	2.4 Licensing requirements and security issues are determined in accordance with organisational policies and procedures.
	2.5 Hardware is purchased to meet recommendations in line with organisation procedures.
3. Install network hardware	3.1 Installation is conducted with minimal disruption to clients using the correct procedures.
	3.2 Hardware is installed in accordance with installation procedures.
	3.3 Installation is configured and tested to ensure client needs are met.
4. Provide support for installed products	4.1 Client's instruction needs are determined and are documented according to organisation guidelines and procedures.
	4.2 One to one instruction to client is provided as required.

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	4.3 Client evaluation and feedback are obtained to ensure requirements are met.
5. Determine and provide instruction and support	5.1 Group instruction requirements are determined and documented.
	5.2 Group training is determined to meet client requirements and referral is made.
	5.3 Client and group evaluation and feedback are obtained to ensure requirements are met.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to installing network hardware to a network.

Hardware may include but are not limited to:

- personal computers
- peer to peer networks
- client servers (includes LAN and excludes WAN)
- printers
- print servers
- monitors
- I/O devices
- network cards
- cables
- routers
- switches
- disks drives
- memory
- CPU upgrades
- CD ROM
- scanners

Organisation variables may include but are not limited to:

- contracting arrangements relating to purchasing Information Technology
- storage of Information Technology equipment and documentation(technical manuals - in-house, product and vendors)
- configuration procedures
- security procedures
- storage and retrieval of product licences
- Information Technology training policy
- testing policy and procedures
- service/support agreements - internal and external

Documentation and reporting may include:

- assessment of current capabilities of the system
- assessment of vendor products and product specifications
- client's requests
- licensing, purchasing and security concerns
- recommendations
- operating instructions for client user

Occupational Health and Safety requirements may include:

- company requirements
- statutory requirement
- vendor requirements
- ergonomic requirements

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User client may include:

- a department within the organisation
- external customer
- existing customer
- new customer

Operating system include:

- stand alone persona computer systems
- network operating systems

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install network hardware to network in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate knowledge of network components, their capabilities and installation procedures
- assess and determine client's requirements based on existing systems
- evaluate and determine licensing, purchasing and security issues
- evaluate vendor products and acquire components in accordance with requirements
- plan, manage and support the installation of new components in a network according to organisational policy and procedures
- demonstrate the ability to carry out installation procedures
- demonstrate safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace
- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes

(2) Pre-requisite Relationship of Units

Pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted network protocols
- current industry accepted network hardware and software products
- current industry security products, devices and procedures

Skills
The ability to:

- provide excellent customer service
- solve problems
- interpret technical computer installation manuals
- negotiate skilful

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- operating system
- client business domain
- Local Area Network capabilities
- organisational contracting procedures and responsibilities
- industry standards
- Occupational Health and Safety regulations
- network linkages
- set up and configuration procedures
- software packages supported by the organisation
- installation procedures
- system diagnostic software

Skills
The ability to:

- produce reports and documentation
- employ change management skills
- carry out questioning and active listening
- convey and clarify complex information
- evaluate and analyse information
- provide instructions
- diagnose software usage
- perform installations

(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- networked system
- hardware components
- client requirement documentation
- enterprise and industry standards and guidelines

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1673A: Implement maintenance procedures

Competency Descriptor: This unit describes the competency required to set up maintenance procedures to keep equipment operating.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Establish best practices for equipment and software maintenance	1.1 Procedures are implemented to identify equipment and software that is to be maintained.
	1.2 Peer organisations or research information detailing best practices in equipment and software maintenance are identified.
	1.3 Recommended maintenance and operations guidelines for equipment and software maintenance are developed in accordance with enterprise guidelines and procedures.
	1.4 User requirements in the area of equipment maintenance are obtained in accordance with enterprise guidelines and procedures.
	1.5 Procedures for maintenance based upon best practices are documented following established guidelines and procedures.
2. Identify resources to provide equipment and software maintenance	2.1 Level of support which can be provided by in-house resources is identified.
	2.2 Support to be supplied by third parties is identified in accordance with enterprise guidelines and procedures.
	2.3 Service Level Agreement with internal users and with third party suppliers is developed or updated in accordance with established guidelines and industry practices.
3. Revise maintenance practices	3.1 Maintenance operation is monitored and reviewed in accordance with enterprise guidelines and procedures.
	3.2 Problem areas or times when Service Level Agreements are not met are identified, and changes to maintenance procedure are considered.

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3.3 Any changes are assessed in consultation with users, support staff and third parties.

3.4 Improvements are modified and implemented in accordance with enterprise and industry guidelines.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to implementing maintenance procedures.

Service Level Agreements may include:

- business processes and requirements
- clearly specified and quantified service levels
- identified evaluation or audit of service levels
- workload and performance considerations
- expectations regarding servicing
- penalties

Clients may include:

- department within the enterprise
- business requiring an e-commerce solution
- existing customer
- new customer

Maintenance options can include:

- on-site response
- remote diagnostics
- return to depot
- on-line real-time support
- web based support
- business hours only support
- 24x7 hours support
- telephone support
- second level support

Software and application may include:

- packaged software
- in-house developed software
- out-sourced development
- customized software

Documentation and reporting may include:

- manual system to monitor change requests
- computerized system to monitor requests
- maintenance procedures
- maintenance reports
- assessment of problems
- test results
- recommendations
- change management process

Best practices may include:

- schedule of maintenance
- user recommended activities
- technical specialist activities
- identification and supply of parts repair of parts

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Standards and procedures may include:

- maintenance guidelines and procedures
- industry regulations
- manufacturers' specifications
- financial control mechanisms
- procedures for communication with clients
- dispute resolution procedures
- modification procedures
- processes for determining size and cost of solutions

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- File & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Help desk and maintenance structures may include:

- call centre or a general contact point which then calls a supplier or other technician
- unit staffed by technicians capable of solving the problem
- contact point which then calls in external contractors

Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory requirement
- vendor requirements
- ergonomic requirements

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to implement maintenance procedures in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of maintenance procedures and technical capabilities of network components
- identify and implement maintenance and operations guidelines for equipment and software
- research, identify and document maintenance best practices
- demonstrate the ability to set up efficient and responsive maintenance procedures to keep equipment and software operating
- assess and develop service level agreements
- monitor and review maintenance operations
- collaboratively establish and implement changes to procedures
- comply with enterprise, industry and Occupational Health and Safety regulations and guidelines

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- help desk and maintenance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the role of stakeholders and the degree of stakeholder involvement
- client business domain
- the system's current functionality
- quality assurance practices
- change management tools
- theoretical concepts of system performance
- maintenance procedures
- business scheduling requirements
- diagnostic tools
- enterprise guidelines and procedures
- industry regulations
- industry best practices
- manufacturers' specifications
- change management processes
- Service Level Agreements
- programming

Skill
The ability to:

- solve problems
- participate in the development of strategic initiatives
- analyse, evaluate and present information
- work in a team
- provide solutions
- plan for and deal with contingencies
- negotiate skilfully
- produce reports and all relevant documentations
- apply change management skills
- maintain the continuity of Information Technology operations and business functions
- provide excellent customer service
- review and monitor maintenance procedures
- resolve conflicts
- conduct risk analysis
- assess training needs
- perform programming

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- a variety of operational equipment
- technical manuals and tools
- enterprise policies and procedures
- Occupational Health and Safety requirements

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1733A: Administer and configure a network operating system

Competency Descriptor: This unit deals with the skills and knowledge required to set up and use administrative tools to manage a network and create the network configuration required by client.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Review network policies	1.1 Organisation's policies and procedures for network use and administration are reviewed.
	1.2 Network administration tools that can be used to enforce policies and procedures are identified.
	1.3 Settings and parameters that should be used in order to meet policies and procedures are documented in accordance with enterprise guidelines and procedures.
	1.4 Recommendations are made to management for ways of overcoming any weaknesses in administration tools.
2. Create an interface with existing system	2.1 Current system is identified through audits of hardware and software.
	2.2 System interaction is determined by identifying what data is required by particular users and how often the data is accessed.
	2.3 Existing applications are examined and are upgraded/ reconfigured to new environment in accordance with enterprise guidelines and procedures.
	2.4 Reconfiguration is tested for successful interface with existing system following the correct procedures.
3. Set up and manage the network file system	3.1 Client user network requirements are evaluated and an appropriate file and folder structure is designed.
	3.2 File and folder structure is created using appropriate administration and system tools.
	3.3 Security, access and sharing of file system are set to meet client user requirements.
	3.4 Virus protection requirements are identified by the network in line with organizational procedures.

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		3.5	File system is tested to ensure that appropriate access is available to the client user groups.
		3.6	File system that is created is documented in accordance with organizational standards.
4.	Manage user services	4.1	Client user network requirements are evaluated and an appropriate set of services that should be provided is designed.
		4.2	Services required are implemented by using the appropriate administration and system tools.
		4.3	Users and groups are created as required to facilitate user security and network access in accordance with client user authorization.
		4.4	Achievement of access by client users to authorised network data and resources is tested.
5.	Monitor user accounts	5.1	Default user settings are modified to ensure that they match security policies.
		5.2	Previously created user settings with more relaxed security are modified according to security and access policies.
		5.3	Display of appropriate legal notices at log on is checked.
		5.4	Appropriate utilities are used to check strength of passwords used.
		5.5	Procedures are reviewed to ensure that users who leave have their accounts disabled or deleted.
		5.6	Information services such as the Internet are accessed to identify well-known and up-to-date security gaps and these are plugged with appropriate hardware and/or software.
6.	Provide and support back-up security	6.1	Network is checked and is ensured to be clean of viruses before back up.
		6.2	Security requirements are reviewed for client users and data to be stored on network.
		6.3	Risks that data is exposed to are determined and appropriate prevention and recovery processes are provided.

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6.4 Systems to provide back up and ability to restore services in the event of a disaster are implemented.

6.5 Disaster recovery procedures are documented.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to administer and configure a network operating system.

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Operating systems

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC
- VMS
- Mac OSX
- Linux
- NetWare

Network may include but not restricted to:

- large Local Area Networks
- small Local Area Networks
- national Wide Area Networks
- the Internet
- the use of the PSTN for dial up modems only
- private lines
- data and voice

Procedures and guidelines may include:

- enterprise procedures
- manufacturers' specifications
- industry practices
- industry standards
- regulatory requirements

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Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory requirement
- vendor requirements
- ergonomic requirements

File system may involve:

- multiple or single servers
- multiple or single logical disks
- complex directory or folder structures

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to administer and configure a network operating system in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of the facilities available in the operating environment
- review existing network policies and identify administration tools
- assess network administration tools, document weaknesses and propose improvements
- demonstrate the ability to use network administrative tools and manage a network
- demonstrate the ability to create the network configuration required by the client and provide timely client service
- provide appropriate monitoring, protection and support services
- establish and implement back up, restore and disaster recovery procedures
- comply with enterprise, industry and Occupational Health and Safety requirements
- perform relevant reporting and documentation procedures

(2) Pre-requisite Relationship of Units

Pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the client business domain, business function and organisation
- network security
- networking technologies with broad knowledge of general features and capabilities
- enterprise policies and procedures
- industry standards
- network administration tools
- network administration procedures
- network operating system
- network security
- user access
- network file system
- virus protection
- disaster recovery procedures
- back up and restore systems

Skill
The ability to:

- communicate effectively
- produce reports and relevant documentation
- analyse, evaluate and present information
- conduct questioning and active listening when dealing with clients and team members
- plan and organise activities
- apply project planning skills
- assess risks
- monitor and evaluate procedures
- set up and implement disaster recovery plans
- monitor user access and account
- use network administrative tools
- configure and reconfigure a network

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- user network requirements
- network administration tools
- access policy

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1263A: Install and manage network protocols

Competency Descriptor: This unit deals with the skills and knowledge required to install and manage network protocols in a network.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Install and configure network protocol environment	1.1 Client user networking requirements are evaluated and an appropriate structure is designed that will link Domains, facilitate Internet Protocol (IP) addressing and Directory Naming Services (DNS).
	1.2 Network addressing system with subnet and host ids are designed using appropriate devices such as gateways, routers or emulations.
	1.3 Hosts and workstations are configured to use Internet Protocol (IP) addresses either manually or through automatic allocation of addresses.
2. Install network protocol applications	2.1 Client user requirements are evaluated and network protocol services that could be used are advised upon.
	2.2 Services that will meet the client user requirements are installed and configured.
	2.3 Operation of services and communication between applications making use of appropriate facilities are tested.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing and managing network protocols.

Documentation and Reporting issues may include:

- maintaining standards of definition
- maintaining standards of format
- maintaining user access information
- clarity and legibility of information
- reports meet the specific output requirements
- reports are presented in a logical and accessible manner

Network may include but not restricted to:

- large Local Area Networks
- small Local Area Networks
- small Wide Area Networks
- large Wide Area Networks

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Standards and procedures may include:

- industry standards
- enterprise requirements
- industry best practices
- regulatory requirements

Software may include:

- packaged software
- in-housed developed software
- full suites of software
- individual components

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Routing may include static and dynamic routers and
router protocols may include:

- Hot Standby Router Protocol (HSRP)
- Border Gateway Protocol (BGP)
- Cisco Discovery Protocol (CDP)
- (Enhanced) Interior Gateway Routing Protocol
- Routing Information Protocol
- NetWare Link State Protocol
- Open Shortest-Path First Interior Gateway Protocol

Servers may include:

- application/web servers: BEA Weblogic Servers, IBM VisualAge and WebSphere, Microsoft Host Integration Server, NetDynamics, Netscape Application Server
- email servers
- file & print servers
- File Transfer Protocol (FTP) servers;proxy servers

Operating systems may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

Each product will have different functionality and ways of operating. Intranet services may be built in or optional extra. In addition third party products may also be used in the intranet.

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Network protocol application may include:

- TCP/IP
- Hypertext Transfer Protocol (HTTP) protocol
- Simple Network Management Protocol SNMP
- H.323 protocol
- Internet Protocol (IP)
- Electronic Mail Protocols
- Address Resolution Protocol (ARP)
- Wireless Application Protocol (WAP)
- Dynamic Host Configuration Protocol (DHCP)
- Simple Object Access Protocol - SOAP
- IPv6 (Internet Protocol version 6)
- File Transfer Protocol (FTP)

EVIDENCE GUIDE

Competency is to be demonstrated by installing and managing network protocols in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of network protocols and how it can be used internally and to facilitate interconnectivity
- evaluate networking requirements and design appropriate structure
- design network addressing systems and configure workstations
- demonstrate the ability to install and manage network protocols in a network
- conduct appropriate testing and evaluation of system
- comply with enterprise and industry requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the client business domain, business function and organisation
- communications technologies with broad knowledge of general features and capabilities
- network protocols
- installing and configuring network protocol environment
- vendor product directions
- network addressing system

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of: (Cont'd)

- testing communication operations
- industry standards
- enterprise policies and procedures
- operations of the Internet
- managing network protocols

Skills
The ability to:

- communicate effectively
- solve problems
- evaluate networking requirements
- design networking addressing system
- use gateways, routers or emulations
- configure host and workstations
- install and configure network protocols
- advise clients
- negotiate skilfully
- analyse and evaluate information
- perform testing of solutions
- comply with procedures and guidelines

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- live network and network protocols
- guidelines and procedures
- client requirements

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 2	
Use technology	Level 3	

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ITINET3043A: Prepare installation plan

Competency Descriptor: This unit deals with the skills and knowledge required to interpret the installation requirements of system and to design a plan for the installation of components on a system and applies to individuals with great technical knowledge such as senior technicians or network engineers.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Evaluate and assess project	1.1 Documentation on installation requirements is checked for completeness and accuracy.
	1.2 The scope and objectives of the installation for the system is interpreted and confirmed through discussions with the relevant personnel.
	1.3 The type of installation and the available budget for the project is identified.
	1.4 Deadlines for the development of the plan and the completion of installation are identified according to client requirements.
	1.5 Actual needs of the customer are verified in accordance with enterprise guidelines and procedures.
	1.6 A site evaluation is undertaken and all barriers to the installation are identified.
	1.7 Safety aspects of the site are evaluated and necessary precautions noted for inclusion in job specifications.
2. Identify components and resources	2.1 Research is undertaken into installation procedures and practices and a range of ideas to complete the task to requirements is generated and assessed.
	2.2 The facilities and constraints are assessed to determine optimum positioning of components to achieve the desired outcome.
	2.3 The range and numbers of components and resources needed to meet the technical and creative requests are determined.
	2.4 Specifications of the components to be installed are identified and documented in accordance with job requirements.

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		2.5	Equipment quantities are checked and availability is assessed in accordance with enterprise requirements.
		2.6	Components installation parameters, required environment and resources required for project are determined and shortfalls are resolved.
		2.7	The human and financial resources required to complete the project is determined and documented in accordance with enterprise guidelines and procedures.
3.	Produce an installation plan	3.1	The installation plan is produced to reflect the requirements of the client and the specifications of the system are verified with the client and the appropriate authority.
		3.2	All research findings, any identified constraints and any suggested improvements to the original brief are taken into consideration in the production of the plan.
		3.3	The plan is draw to scale and includes relevant title block, key or legend and industry standard symbols.
		3.4	All relevant information on the plan, including location and types of components, accessories and supports or mounts and power sources are identified.
		3.5	An accurate list of all equipment and technical requirements for the project is included and is verified with the client.
4.	Detail project task and timelines	4.1	All tasks associated with the project are identified and detailed.
		4.2	Resource needs are identified and built into the plan.
		4.3	Timeframes associated with each aspect of the project are identified.
		4.4	All the customer's needs in relation to the project and its timing are accounted for.
		4.5	Plan is documented in a manner which facilitates ease of management of the project.
		4.6	Quality plans incorporating flow process charts are developed where appropriate.
		4.7	Plan is verified with all appropriate personnel including the customer.
		4.8	Contingency plans are developed to account for delays or other problems experienced during the project.

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		4.9 Modifications to the plan are recognised and instituted within accepted timeframes.
5.	Present and update installation plan	5.1 The plan is presented to relevant personnel and technical requirements are explained.
		5.2 Participate in the ongoing evaluation of the presented plan.
		5.3 Additional requirements or modifications are negotiated and agreed to and any necessary amendments to the installation plan are undertaken.
		5.4 The final plan is made available to the relevant personnel to ensure smooth installation and operation of the systems.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to preparing installation plan.

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Software may include:

- packaged software
- in-housed developed software
- full suites of software
- individual components

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Standards and procedures may include:

- industry standards
- enterprise requirements
- industry best practices
- regulatory requirements

User client may include:

- a department within the organisation
- external customer
- existing customer
- new customer

Organisation variables may include but are not limited to:

- contracting arrangements relating to purchasing Information Technology
- storage of Information Technology equipment and documentation(technical manuals - in-house, product and vendors)
- configuration procedures
- security procedures
- storage and retrieval of product licences
- Information Technology training policy
- testing policy and procedures
- service/support agreements - internal and external

Occupational Health and Safety requirements may include:

- company requirements
- statutory requirement
- vendor requirements
- ergonomic requirements

Installation plans are developed in accordance with:

- customer requirements
- site limitations
- organisational policies and procedures
- budget constraints
- technical constraints
- resource constraints
- production schedule
- relevant legislative and organisational Occupational Health and Safety requirements statutory regulations

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to prepare installation plan in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate technical knowledge of the performance capacity of range of vision systems
- effective interpretation of the requirements and development of workable plans to meet the requirements
- effective communication with clients and other technical personnel
- identify all necessary resources and assess availability of resources
- produce plan incorporating all relevant data and solutions
- present and evaluate plan with relevant personnel

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Critical Aspects and Evidence (Cont'd)

- negotiate additional requirements and modifications
- evaluate and assess site and determine installation environment

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the capacities and limitations of different types of components
- technical requirements and constraints of installing all types of components
- costing and budget issues associated with the design of installation planning, including equipment and technician costs, ways to reduce costs, ways of presenting costs
- processes and procedures typically used to ensure version control for draft and final plans
- Occupational Health and Safety issues
- enterprise policies and procedures
- manufacturers' specifications
- statutory regulations
- site assessment
- client business domain
- system's current functionality
- quality assurance practices
- network architecture
- network operating system
- engineering drawings
- industry terminologies and symbols
- budgetting

Skills
The ability to:

- communicate in a clear and concise manner
- relate to people from different social and cultural backgrounds
- read and interpret requirements and specifications
- assess sites
- assess and determine limitations and constraints
- research and evaluate installation options
- plan and develop drawings and plans
- methodically organise, prioritise and schedule work tasks and timelines
- estimate resource requirements
- allocate resources
- solve problems
- supervise and evaluate work progress
- negotiate skilfully
- produce relevant reports and documentations

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- client requirements and budget
- installation site
- inventory of relevant resources and components
- enterprise and industry procedures and standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

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ITINET1123A: Acquire system components

Competency Descriptor: This unit deals with the skills and knowledge required to identify system components and to follow procedures to purchase those components.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Confirm system components to acquire	1.1 Technical papers and recommendations that identify required hardware/software components are reviewed with implementation team.
	1.2 The fit with existing technology is assessed with systems developers.
	1.3 Best and current technology fit for each purpose is identified with systems developers.
	1.4 A list of required components is developed with specifications and possible suppliers.
2. Agree methods to acquire components	2.1 The client organisation's preferred acquisition methods and policies are identified and assessed against required components.
	2.2 Acquisition alternatives for required hardware/software components are evaluated against required service levels, cost constraints and geographic constraints.
	2.3 Recommended acquisition method is selected and discussed with client users and management.

RANGE STATEMENT

This unit applies to activities associated with the essential operations acquired system components.

Identification of system components may require consideration of the following:

- current business and Information Technology strategic plans
- data models
- functional process descriptions
- user requirements
- architectures
- standards
- service levels

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System components can include but are not limited to:

- acquisition of products or services
- hardware such as personal computers, networks, printers
- software such as applications, utilities, operating systems
- facility management
- integration and/or implementation services

Method of supplier selections may include one or several of the following:

- Registration of Interest (ROI)
- Request for Information (RFI)
- Request for Proposal (RFP)

The above approaches could involve advertising to the open market, existing relationships or preferred supplier lists.

Organisation variables may include but are not limited to:

- contracting arrangements relating to purchasing Information Technology
- storage of Information Technology equipment and documentation(technical manuals - in-house, product and vendors)
- security procedures
- procedures on product licensing arrangements
- signing off procedures on purchasing
- supplier selection policies and procedures
- service/support agreements - internal and external

Acquisition method can include but is not limited to:

- purchase
- lease
- rental
- new or refurbished
- outsourcing

Client may include:

- a department within the organisation
- external customer
- existing customer
- new customer
- small business
- large organisation

Documentation and reporting may include:

- assessment of current capabilities of the system
- assessment of vendor products and product specifications
- client's requests
- licensing, purchasing and security concerns
- recommendations
- operating instructions for client user

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to acquire system components in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of the acquisition methods, current technology fit and the capabilities of system components
- assess current technology fit with existing and future system

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Critical Aspects of Evidence (Cont'd)

- determine the capabilities and specifications of components and identify the relevant suppliers
- evaluate client's organization procurement methods and make recommendations
- demonstrate the ability to identify correct system components and to follow procurement procedures to purchase those components
- determine client requirements and achieve solutions through negotiations with clients and suppliers

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- vendor product directions
- current technology fit for each purpose
- quality assurance practices
- information gathering techniques
- acquisition methods
- change management systems
- risk management
- financial management of lease arrangement
- acquisition alternatives for required hardware/software components
- service agreements, cost constraints and geographic constraints
- client business domain
- methods of supplier selection
- enterprise policies and procedures

Skills
The ability to:

- solve problem
- contribute to the development of strategic initiatives
- communicate effectively
- analyse, evaluate and present information
- select and recommend acquisition methods
- negotiate skilfully
- work in a team
- facilitate discussions to achieve consensus
- apply project planning skills in relation to scope, time, procurement, cost, quality, communications and risk management
- research, collect and present information

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- tender documentation, evaluation/performance criteria, comparison check lists
- client requirements and preferred acquisition methods
- suppliers and component specifications

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1283A: Install and maintain a server

Competency Descriptor: This unit deals with the skills and knowledge required to deploy a server and monitor its operation.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Develop installation plan	1.1 Deployment environment is assessed with reference to system capacity, interdependencies and interoperability in accordance with enterprise guidelines and procedures.
	1.2 Installation options are identified and documented in accordance with enterprise guidelines and procedures.
	1.3 Scale of installation and use of pilots is determined as required.
	1.4 Data migration requirements are identified and documented in accordance with enterprise guidelines and procedures.
	1.5 Backup and recovery requirements are identified and applied as required with reference to organisational policy.
	1.6 Education and training requirements are identified as required in line with client requirements and relevant enterprise policies.
	1.7 Resource requirements are identified and documented in accordance with enterprise guidelines and requirements.
	1.8 Deployment plan is created, reviewed and documented as required.
2. Server is installed	2.1 Local data is backed up and restored as required.
	2.2 User group is advised of deployment and potential down times.
	2.3 Server is installed and configured as required by functional specification.
	2.4 Relevant connectivity devices are reconnected and reconfigured as required.
	2.5 Relevant operating system and application upgrades are installed and configured as required.
	2.6 Relevant tests are implemented and the results are recorded, analysed and reported as required.

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		2.7 Deployment pilot is repeated where relevant following the correct policies and procedures.
		2.8 Documentation is created for users and maintainers in accordance with enterprise policies and guidelines.
3.	Server operation is monitored	3.1 Required service levels are identified and performance benchmarks are determined and operation monitored against these.
		3.2 Relevant management tools are identified and used with reference to server functionality and enterprise policies.
		3.3 A programme of selective independent audits and tests are developed and implemented.
		3.4 Audit and test programs with results are recorded, analysed and reported as required with any tuning completed.
		3.5 Configuration and operational changes are made and documented as required.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing and maintaining a server.

Server applications may include**:**

- file sharing
- printer sharing
- messaging
- web services
- network and remote access
- database and data warehousing
- directory services
- management
- line of business applications
- terminal services

Deployment considerations may include:

- legacy systems
- desktop and server specification
- time synchronisation services
- TCP/IP architecture
- the physical and logical network
- training requirements

Documents may include details on:

- engineering of desktop, laptop and server operating systems
- the use of desktop, laptop and server operating systems
- usage of sever management tools
- logon scripts
- file schema

Network Operating Systems (NOS) may include:

- OS/2
- Novell Netware
- Linux
- Unix Ware
- MS Windows NT
- MS Windows 2000

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Aspects of server configuration may include:

- log file rotation
- entry cache
- database cache
- consumers and suppliers
- large objects
- search and write performance
- LDAP clients
- cache sizes
- port numbers
- directory configuration
- root DN
- access control needs
- hostnames
- IP addresses
- DNS
- server domains
- network connectivity issues
- NetBIOS naming

Features of a current server applications may include:

- Lotus Notes/Novell GroupWise for messaging
- Apache / MS IIS for web services
- Novel Border Manager/MS Proxy Server for network services
- Oracle / MS SQL Server/IBM DB2 for databases and data warehousing
- Novell Directory Services/iPlanet for directory services
- HP Openview/Intel LAN Desk Server Manager / CA UniCenter for management
- SAP / PeopleSoft/ aan for line of business applications
- MS Terminal Server/Citrix MetaFrame for terminal services

Policies may include:

- incident response procedures
- network intrusion detection systems
- forensic procedures
- training and awareness raising policy

Method of server monitoring may include:

- taking periodic baseline measurements
- using server management tools
- surveying the user community

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install and maintain a server in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of network operating systems and server applications
- assess deployment environment and develop deployment plan
- identify, assess and evaluate all training and resource requirements and provide reliable solution
- determine and apply backup and recovery requirements
- demonstrate the ability to deploy, monitor and maintain server operation with minimum downtime and disruption to the business
- apply installation and maintenance procedures to specifications
- use relevant server management tools and pilot deployment
- produce and provide relevant documentation and records
- determine performance benchmarks and implement relevant testing/auditing and analysis to determine compliance

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- features of a current Network Operating Systems (NOS)
- features of a current server applications
- desktop applications and operating systems
- compatibility issues and resolution procedures
- system backup procedures
- enterprise communication/training systems
- server management tools
- server configuration
- installation procedures
- maintenance procedures
- manufacturers' specifications
- client business domain
- piloting of deployment
- deployment planning
- server performance benchmarks
- server audit and test programs
- enterprise policies and guidelines
- industry standards and codes of practice
- Occupational Health and Safety requirements
- monitoring server performance

Skills
The ability to:

- use relevant server management tools
- apply project management skills
- create technical and user documentation
- understand user applications and relate user needs to configuration
- analyse operational issues
- outline maintenance procedures
- follow specified maintenance procedures
- troubleshoot failures
- communicate effectively
- read and interpret technical documentation
- negotiate effectively
- conduct auditing and testing
- analyse, evaluate and present information
- deliver training and advise
- install and monitor server
- plan and organise work

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- client user requirements
- server
- relevant tools and resources
- enterprise and industry requirements

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1103A: Review site for implementation

Competency Descriptor: This unit deals with the skills and knowledge required to identify environmental pre-requisites prior to installation commencing.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan work area	1.1 Technical and environmental system requirements for equipment to be installed are obtained and site requirements are documented including Occupational Health & Safety site specific requirements.
	1.2 Requirements associated with equipment are considered against installation requirements.
	1.3 On-site inspection/audit is conducted against site specifications.
	1.4 Preliminary recommendations for site are formulated and impact on installation schedule is assessed.
	1.5 Changes to site to meet requirements are recommended and submitted to senior management for approval.
2. Evaluate the environment	2.1 Support staff are organised to facilitate a successful installation in accordance with enterprise guidelines and policies.
	2.2 Cabling and other environmental equipment are installed to required technical and industry standards.
	2.3 The installation of hardware is managed to ensure relevant Occupational Health and Safety standards for hardware installation are adhered to.
	2.4 All hardware/software is reviewed and tested to ensure that the system meets client business requirements and system objectives.
3. Document recommendations	3.1 A report documenting findings and issues relating to site requirements and preparation is prepared in accordance with enterprise guidelines and procedures.
	3.2 Final recommendations are submitted to senior management for approval in accordance with enterprise policies and guidelines.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to reviewing site for implementation.

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems: analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Environmental specifications are usually obtained from manufacturer/supplier and specifies detailed technical information for the particular item and may include:

- requirements for power, uninterruptible power supplies, grounding, lighting
- temperature and air-conditioning, ventilation,
- fire protection systems
- computer room security
- network/telecommunications cabling, internal and external connectivity
- access requirements
- electromagnetic fields (EMF)

Implementation site may include:

- specific site in building/s where the equipment is to be installed
- implementation at multiple locations in one building
- building-wide implementation

This unit of competence will not include implementation of multiple sites across a city, a state, country or many countries

Preliminary recommendations may include but are not limited to:

- minor modifications to environment
- enhancements to environment
- relocations within environment
- change in equipment to be ordered

Policies and guidelines may cover:

- customer service requirements
- site preparation specifications
- budgeting
- technical resources
- time
- relevant legislative and organisational Occupational Health and Safety requirements

Inspection resources may include:

- client/customer staff with technical knowledge of a client/customer specific environment
- technical and Occupational Health and Safety specifications of equipment to be installed
- tools to conduct audit
- site preparation plans

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Occupational Health and Safety requirements may include:

- company requirements
- statutory requirement
- vendor requirements
- ergonomic requirements
- legislative requirements

Operational aspects of system may include:

- startup /shutdown
- recovery and error handling
- system performance

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to review site for implementation in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of components of site preparation and relationship/impact to the overall installation schedule
- assess and document the technical and environmental requirements relating to the installation activity
- demonstrate the ability to identify environmental pre-requisites prior to installation commencing
- demonstrate the ability to logically sequence the preparatory steps taking into account time and budget constraints
- conduct site evaluation, assess findings and formulate recommendations
- test and evaluate hardware and software for compliance with client and business requirements
- produce and present relevant documentations and reports

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- pre-requisites needed for system installation
- vendor specifications and requirements for installation
- legislative requirements relating to cabling and building preservation
- site evaluation
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- role of stakeholders and the degree of stakeholder involvement
- system's current functionality
- quality assurance practices
- client business domain
- enterprise policies and guidelines
- legislative and regulatory requirements
- Occupational Health and Safety requirements

Skills
The ability to:

- read and interpret environmental and technical requirements
- analyse, evaluate and present information
- determine installation specifications
- make informed recommendations
- conduct site evaluation and impact assessment
- test and review software/hardware after installation
- solve problems
- communicate effectively
- apply project planning skills
- plan and organise work

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- a mock or real customer computer site
- a list of equipment to be installed
- access to staff resources and technical equipment
- relevant policies, guidelines and standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

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ITINET1783A: Monitor and administer network security

Competency Descriptor: This unit deals with the skills and knowledge required to monitor and administer security functions on the network.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Ensure user accounts are controlled	1.1 Default user settings are modified to ensure that they match security policies in accordance with enterprise guidelines and procedures.
	1.2 Previously created user settings with more relaxed security are modified according to security and access policies.
	1.3 It is ensure that appropriate legal notices are displayed at log on.
	1.4 Appropriate utilities are used to check strength of passwords used.
	1.5 Procedures are reviewed to ensure that users who leave have their accounts disabled or deleted.
	1.6 Information services such as the Internet are accessed to identify well-known and up-to-date security gaps and these are plugged with appropriate hardware and/or software.
2. Ensure secure file and resource access	2.1 In-built security and access features of the network operating system are reviewed.
	2.2 File security categorization scheme is reviewed or developed and an awareness of the role of users in setting security is ensured.
	2.3 Threats to network are monitored in accordance with industry practices and enterprise guidelines and procedures.
	2.4 Virus checking software is implemented at server and workstations in accordance with enterprise guidelines and procedures.
	2.5 In-built or additional encryption facilities are implemented following the appropriate procedures.

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3.	Monitor threats to the network	3.1 Appropriate third party software is used to evaluate and report on the security in place in the network.
		3.2 Logs and audit reports are reviewed to identify security intrusions or attempts.
		3.3 Spot checks and other activities are carried out to ensure that procedures are not being bypassed.
		3.4 Audit report and recommendations are prepared, presented to senior management and approval for changes to be made is obtained.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to monitoring and administering network security.

Commercial and business requirements may include:

- back-up
- storage and recovery of data
- access to internal network
- passwords/logons
- firewalls
- hacking
- confidentiality
- integrity
- availability

Physical nature of security may depend on:

- number of access points
- the size network
- location of network
- local or wide area networks
- access by people other than employees
- if the network itself is in an intrinsically secure building

Security environment includes:

- relevant privacy laws
- organizational security policies
- ethical issues
- customer requirements/expectations
- expertise and knowledge that are, or may be, relevant

Network may include:

- large Local Area Networks
- small Local Area Networks
- Intranets
- the Internet

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Security policy may cover:

- theft
- viruses
- standards (including archival, back-up, network)
- privacy
- audits
- alerts
- security objectives of the organisation

Software most likely to be packaged software but can be supplied from many varying vendors and can include:

- security
- audit
- virus checking
- encryption modules

Hardware may include:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems: analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, As ante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: Acer Altos, Aerocomm, Alpha Server, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystem

Security strategy may include:

- privacy
- authentication
- authorization and integrity
- issues usually relating directly to the security objectives of the organization

Security threats may include:

- eavesdropping
- manipulation and impersonation
- penetration and by-pass
- virus attack
- hackers

Operating systems may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC
- VMS
- Mac OSX
- Linux
- NetWare

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Operating procedures may include:

- handling of security internal breaches and customer requirements for security
- frequency and nature of archives
- back-ups
- alerts
- audits
- review and test

Statutory requirements may include:

- legislation
- confidentiality requirements
- level of access to information
- control on reporting of information
- industry imposed controls and standards

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to monitor and administer network security in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of security features available in the operating environment
- modify user setting to match security policies and appropriate legal notices are displayed
- monitor user accounts and use of passwords
- access information on current security threats and employ appropriate plugs
- assess in-built security feature of operating system and add improvements where necessary
- demonstrate the ability to monitor and administer security functions on the network
- complete relevant auditing, testing and checking for real and potential threats
- produce documentations and reports in accordance with requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain, business function and organization
- networking technologies and their feature and capabilities
- risk analysis
- general features of specific security technology
- privacy and privacy legislation
- industry standards and controls
- enterprise guidelines and procedures
- managing user accounts
- file and resource access
- common threats to network
- security strategies
- legislative and regulatory requirements
- security tools
- virus detection and protection
- encryption facilities
- network and workstation security settings

Skill
The ability to:

- solve problems
- communicate effectively
- analyse, evaluate and present information
- research information
- identify, analyse and evaluate features of a particular business domain
- identify and apply best practice in network security methodologies and technologies
- produce reports and relevant documentation
- questioning and active listening skills
- apply project planning skills
- set benchmarks and identified scope
- identify security threats and provide protection
- monitor and administer security on the network
- implement and upgrade in-built security features
- ensure file and resource access

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- appropriate equipment and software with security restrictions
- enterprise and industry controls, standards, guidelines and procedures
- clients security requirements

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1573A: Rectify system faults on a live system

Competency Descriptor: This unit deals with the skills and knowledge required to manage reactive errors and failures on a live system.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Determine maintenance methodologies and repositories	1.1 Main types of system modifications to be actioned are accurately identified.
	1.2 Existence and currency of repositories are confirmed and new back-up procedures are developed if these have changed.
	1.3 Modification request forms and level of authorities required are prepared or checked following the correct procedures.
	1.4 Hierarchy of modifications and the response for each is developed in accordance with enterprise guidelines and procedures.
	1.5 Existing back-up and blackout strategies are determined.
2. Implement change management system	2.1 Standards and procedures for logging the change request are followed.
	2.2 Expected impact to the user base during implementation is documented in accordance with enterprise guidelines and procedures.
	2.3 Levels of possible failure and the related reporting procedures are identified.
	2.4 Expected outcomes of the modification/s are documented in accordance with enterprise guidelines and procedures.
	2.5 Users are informed of modification implications in accordance with enterprise guidelines and procedures.
	2.6 Modification is assigned to appropriate support staff following the correct procedures.

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3.	Report review of results	3.1 All aspects of the change system are completed and modification is fully tested and operational.
		3.2 Report to the appropriate person is prepared indicating the results of modifications.
		3.3 All documentation and repositories are updated and amended in accordance with enterprise guidelines and procedures.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to rectify system faults on a live system.

Type of change may include:

- minor request for a cosmetic change
- fixing a serious problem that stops the system functioning
- changes relating to hardware
- changes relating to software

Main types of system modifications may include:

- error correction
- system recovery
- assistance
- enhancement

Software may include:

- packaged software
- in-housed developed software
- full suites of software
- individual components

Repositories may include:

- central repository
- program library
- databases

Help desk and maintenance structures may include:

- call centre or a general contact point which then calls a supplier or other technician
- unit staffed by technicians capable of solving the problem
- contact point which then calls in external contractors
- real-time on-line support
- web based support

Maintenance options can include:

- on-site response
- remote diagnostics
- return to depot
- business hours only support
- 24x7 hours support
- telephone support
- real-time on line support
- second level support

Service Level Agreements may include:

- business processes and requirements
- clearly specified and quantified service levels
- identified evaluation or audit of service levels
- workload and performance considerations
- expectations regarding servicing
- penalties

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Standards and procedures may include:

- maintenance guidelines and procedures
- industry regulations
- manufacturers' specifications
- financial control mechanisms
- procedures for communication with clients
- dispute resolution procedures
- modification procedures
- processes for determining size and cost of solutions

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to rectify system faults on a live system in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of help desk and maintenance practices, change management and the system under modification
- interpret and respond to change requests in accordance with established procedures
- develop and implement the relevant strategies, procedures and methodologies to deal with requests
- identify faults, take corrective actions and develop relevant back-up systems
- assess impact of changes and inform users of the implications
- plan and delegate work and monitor implementation of changes
- prepare and present relevant reports and documentations
- comply with enterprise and industry requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- help desk and maintenance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- role of stakeholders and the degree of stakeholder involvement
- client business domain
- system's current functionality
- quality assurance practices

Skill
The ability to:

- read and interpret technical documentation
- interpret change requests
- solve problems
- participate in the development of strategic initiatives
- analyse, evaluate and present information
- work in a team

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- change management tools
- system testing
- change control procedures
- the system under modification
- hierarchy of modification
- back-up and black out strategies
- change management system
- planning and implementing modifications
- change request logging standards and procedures
- maintenance procedures
- enterprise guidelines and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements
- common faults and accepted solutions

Skill
The ability to:

- provide solutions
- plan for and deal with contingencies
- negotiate skilfully
- produce reports and all relevant documentations
- apply change management skills
- maintain the continuity of Information Technology operations and business functions
- provide excellent customer service
- resolve conflicts
- conduct risk analysis
- assess training needs
- perform programming
- make modifications and changes on live system with minimal disruption
- develop and implement strategies and procedures

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- a live system
- procedures for logging change requests
- enterprise procedures and guidelines
- industry standards
- relevant tools and resources

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

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ITINET3173A: Perform system test

Competency Descriptor: This unit deals with the skills and knowledge required to perform the procedures involved to ensure that the system is operating to the required level of performance.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Plan and establish test regime	1.1	Tests are planned to ensure a full trial of new or enhanced design in accordance with enterprise policies and procedures.
	1.2	Test environment is chosen and established to ensure total validity of chosen tests.
	1.3	Plan is designed to ensure greatest coverage for minimal tests in accordance with enterprise guidelines and industry practices.
	1.4	Details of tests required and desired outcome is fully documented in accordance with enterprise guidelines and procedures.
	1.5	Expected results are reviewed against acceptance criteria and system requirements documentation.
	1.6	Tests are designed to not only to test new or changed system but to also to test impact on existing systems.
	1.7	Logs and result sheets are gathered and prepared in accordance with enterprise guidelines and procedures.
	1.8	Client users are notified of scheduled test in accordance with enterprise guidelines and procedures.
	1.9	Preparatory work is checked to ensure that they have been completed and complies with requirements.
	1.10	Tools, equipment and testing devices needed to carry out the work are obtained in accordance with established procedures and checked for correct operation and safety.
2. Undertake tests	2.1	Test regime is studied and understood and planners questioned where doubts exist as to full requirement.
	2.2	Test instruments are checked to ensure they meet required standards.

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		2.3	Tests are conducted in logical and sequential order and in accordance with planned test regime.
		2.4	Difficulties experienced during the test are discussed with system experts and/or designers.
		2.5	Trouble reports are prepared and submitted in accordance with enterprise policy where required.
		2.6	Test results are documented progressively in accordance with enterprise guidelines and procedures.
3.	Analyse test results	3.1	Test results are analysed against design specifications and planned outcomes.
		3.2	Major deficiencies are referred back to designers with a full report as to results and with recommendations for design change where appropriate.
		3.3	Variances are analysed and solutions to problems are developed.
		3.4	Changes to specifications as a result of changes are clearly documented.
4.	Retest design changes	4.1	Design and specification changes made as a result of original tests are retested.
		4.2	Further tests are analysed against specifications and planned outcomes.
		4.3	Results of tests are fully documented and recorded in accordance with enterprise policy.
5.	Complete tests	5.1	Final inspections are undertaken to ensure the system tests conforms to requirements.
		5.2	Client users are notified of test completion in accordance with enterprise guidelines and procedures.
		5.3	Results are summarised and classified, highlighting critical or urgent areas of concern.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to performing system test.

Tests may include checks for:

- user error
- physical connectivity
- noise level
- data loss
- software

Test results may include:

- voltage measurements
- resistance measurements
- captured data
- statistics
- data traffic

Testing tools and equipment may include:

- multimeter
- cable tester
- network operating system log files
- network monitor
- network analyzers

Test details may include:

- type of test
- duration of test
- testing procedures
- expected results

Possible faults may include:

- operator error
- open circuits
- faulty components
- wires and/or cables wrongly terminated
- collisions
- ghosts
- signal noise
- runts
- poor network response time
- software
- faulty cables
- jabber
- giants

Tests may include checks for:

- user error
- physical connectivity
- noise level
- data loss
- software

Network may include but not restricted to:

- large Local Area Networks
- small Local Area Networks
- small Wide Area Networks
- large Wide Area Networks

Test environment may include:

- segment of a network
- entire system
- live system
- isolated system
- network backbone

Preparatory work may include:

- installation of components
- isolation of component or system
- removal of hazards
- notification to users

Solutions to problems may include:

- replacing components
- reconnecting cables
- patching software
- replacing cables
- reconfiguring network

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Guidelines and procedures may include:

- enterprise policies and procedures
- industry codes of practice
- manufacturers' specifications
- regulatory requirements
- legislative requirements
- Occupational Health and Safety requirements

Documentation may include:

- equipment manuals
- operating instructions
- design specifications
- installation details
- maintenance procedures
- expected test results

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to perform system test in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of system tests, system faults and relevant solutions
- establish test plan and test environment in accordance with best practices
- demonstrate the ability to identify and conduct tests and interpreting results
- develop systematic approach to problem diagnosis and eliminating causes
- establish expected outcomes from testing and analyse test results
- apply all related occupational health and safety requirements and work practices
- prioritise problems identified during tests and apply enterprise procedures covering such priorities within service assurance guidelines
- interact with enterprise personnel, customers and other contractors keeping a customer focus and consideration of customer needs
- effectively use tools, equipment and diagnostic tools and programs
- read, interpret and use equipment/system manuals and specifications and relevant enterprise policy and documentation
- produce report outlining findings and including recommendations with supporting reasons

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain
- the system's current functionality
- quality assurance practices
- testing procedures
- system faults
- solutions to system faults
- diagnostic tools
- manufacturers' specifications
- risk assessment
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety procedures
- network management tools
- establishing testing environment
- established performance requirements for system

Skills
The ability to:

- solve problems
- participate in the development of strategic initiatives
- analyse, evaluate and present information
- work in a team
- plan for and deal with contingencies
- negotiate skilfully
- produce reports and all relevant documentations
- maintain the continuity of Information Technology operations and business functions
- provide excellent customer service
- review and monitor tests procedures
- resolve conflicts
- conduct tests
- analyse results
- rectify system problems

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- network
- technical tools, equipment and manuals
- expected test outcomes and relevant results sheets
- manufacturers' specifications
- enterprise and industry guidelines and procedures

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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BSBCOR0103A Deliver and monitor a service to customer

Competency Descriptor: This unit deals with the skills and knowledge required to ensure that products and services are delivered and maintained to standards agreed by the organisation and the customer. This will be carried out in the context of the organisation's policies and practices as well as legislation, conventions and codes of practice.

Competency Field: Front Line Management

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Plan to meet internal and external customer requirements	1.1	The needs of customers are researched, understood, and assessed, and included in the planning process.
	1.2	Provision is made in plans to achieve the quality, time and cost specifications agreed with customers.
2. Ensure delivery of quality products/services	2.1	Products/services are delivered to customer specifications within the team's business plan.
	2.2	Team performance consistently meets quality, safety, resource and delivery standards.
	2.3	Coaching and mentoring assists colleagues to overcome difficulty in meeting customer service standards.
3. Monitor, adjust and report customer service	3.1	The organisation's systems and technology are used to monitor progress in achieving product/service targets and standards.
	3.2	Customer feedback is sought and used to improve the provision of products/services.
	3.3	Resources are used effectively to provide quality products/services to customers.
	3.3	Decisions to overcome problems and adjust products/services are taken in consultation with designated individuals/groups.
	3.4	Records, reports and recommendations are managed within the organisation's systems and processes.

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RANGE STATEMENT

The scope and context of this unit of competence allow for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace, which may include:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

Frontline Supervisor with NCTVET level III Qualification will normally be engaged in a workplace context where they:

- engage in short term planning within the department's business plans. For example, prepares a weekly schedule of outputs and/or outcomes to be achieved
- take responsibility for own outputs in work and learning. For example, assesses own performance and identifies the competencies which need to be upgraded/developed
- take limited responsibility for the output of others. For example, provides coaching support to assist individuals meet their performance requirements
- demonstrate some relevant theoretical knowledge. For example, explains the purpose of Key Performance Indicators to others
- perform a defined range of skills, usually within known routines, methods and procedures and within known time constraints. For example, provides services to internal customers within an agreed schedule
- apply known solutions to a variety of predictable problems. For example, within the organisation's standard procedures considers the options and, using some discretion and judgement, selects the preferred action to
- rectify faulty service to a customer
- interpret available information, using some discretion and judgement in work responsibilities. For example, interprets the continuous improvement processes, procedures and documentation used by the team and decides how to apply them to own work function

Frontline management at this level III normally operate in a relatively simple and routine workplace environment in which they use the organisation's:

- goals, objectives, plans, systems and processes
- business and performance plans
- access and equity principles and practice
- ethical standards
- quality and continuous improvement processes and standards
- defined resource parameters

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Customers may be:

- internal or external, and be drawn from existing or new sources

Resources may include:

- People, power/energy, information, finance, finance, building/facilities, equipment, technology, time

OHS considerations may include:

- Safe delivery of organisations products/services

Technology will be:

- that readily available in the workplace and will be appropriate to frontline management's roles and responsibilities

Designated individuals/group include:

- Those who have authority to adjust plans

EVIDENCE GUIDE

The critical aspects, underpinning knowledge and skills identified must be demonstrated to confirm competence for this unit.

(1) Critical Aspects of Evidence

- prepares plans to meet customer needs
- provides quality service consistently
- reviews and improves services following feedback
- reports outcomes of customer service

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BSBFLM0023A Support leadership in the workplace
- BSBFLM0043A Participate in work teams
- BSBCOR0113A Maintain workplace safety
- BSBFLM0093A Support continuous improvement systems and processes

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- the organisation's policies and procedures for dealing with customers
- the principles and techniques of: researching customer needs, customer relations, customer behaviour, identification and resolution problem
- maintaining product/service quality
- an understanding of a person needs to perform work to the required standard

Skills
The ability to:

- access and use workplace information
- communication skills including researching and analysing information and reporting
- manage work within responsibility to achieve goals and results
- develop and maintain communication with customers
- make effective use of customer feedback
- prepare and negotiate recommendations to improve customer service
- ensure that legislation and standards are met
- manage products/services within budget constraints
- use coaching and mentoring skills to provide support to colleagues
- relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

(4) Resource Implications

The following resources should be provided:

- access to appropriate documentation and resources normally used in the workplace

(5) Method of Assessment

- In order to achieve consistency of performance, evidence should be collected over a set period of time, which is sufficient to include dealings with an appropriate range and variety of situations

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(6) Context of Assessment

Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement

Assessment must take account of the endorsed assessment guidelines in the Business Services Competency Package

Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment

Assessment should reinforce the integration of the Critical Employability Skills and the Business Services Common Competencies for the particular NVQ Level.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

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BSBCOR0113A: Maintain workplace safety

Competency Descriptor

This unit deals with the skills and knowledge required for the frontline supervisor to implement and monitor the organisation's Occupational Health and Safety policies, procedures and programmes to meet statutory requirements.

Competency Field: Front Line Management

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Assist incorporation of Occupational Health and Safety policy and procedures into the work team	1.1	Understanding of basic requirements of Occupational Health and Safety legislation in area of responsibility appropriate for health and safety needs of a small work team are demonstrated.
	1.2	Information on the organisation's Occupational Health and Safety policies, procedures and programs is provided in a readily accessible manner and clearly explained to the work group.
	1.3	Information about identifying hazards and the outcomes of risk assessment and control is regularly provided and clearly explained to the work group.
	2.1	Organisational consultative procedures are implemented and monitored to facilitate participation of work group in management of work area hazards.
2. Support participative arrangements for the management of Occupational Health and Safety	2.2	Issues raised through consultation are promptly dealt with in accordance with organisational procedures for issue resolution.
	2.3	Encouragement and assistance is given to team members to contribute to the management of Occupational Health and Safety at the workplace.
	2.4	Feedback from individuals and teams is used to identify and implement improvements in the management of Occupational Health and Safety.

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3.	Support the organisation's procedures for providing Occupational Health and Safety training	3.1	Advice is provided on Occupational Health and Safety training needs of individuals and workgroup.
		3.2	Advice is provided on strategies and opportunities for development of workgroup's competencies in relation to Occupational Health and Safety.
		3.3	Coaching and mentoring assistance is provided to team members to support the effective development of individual and group competencies in Occupational Health and Safety.
4.	Participate in identifying hazards and assessing and controlling risks for the work area	4.1	Advise is provided on hazards in the work are in accordance with organisation's Occupational Health and Safety policies and procedures.
		4.2	Support is provided in implementing procedures to control risks using the hierarchy of controls and in accordance with organisational procedures.
		4.3	Inadequacies in existing risk control measures are identified and reported in accordance with the hierarchy of controls.
		4.4	Occupational Health and Safety records of incidents in the work area are accurately completed and maintained in accordance with Occupational Health and Safety legal requirements.

RANGE STATEMENT

The scope and context of this unit of competence allow for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace including:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

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Occupational Health and Safety legislation will include:

- common law duties to meet the general duty of care requirements
- requirements for the maintenance and confidentiality of records of occupational injury and disease
- provision of information, induction and training
- regulations and approved codes of practice relating to hazards present in work area
- health and safety representatives and health and safety committees
- prompt resolution of health and safety issues

Organisational Occupational Health and Safety policies and procedures may include:

- procedures for hazard identification
- procedures for risk assessment, selection and implementation of risk control measures
- incident (accident) investigation
- OHS audits and safety inspections
- consultative arrangements for employees in work area
- hazard reporting procedures
- safe operating procedures/instructions
- use & care of personal protective equipment
- emergency & evacuation procedures
- purchasing policy & procedures
- plant & equipment maintenance & use
- hazardous substances use and storage
- dangerous goods transport & storage
- OHS arrangements for on site contractors, visitors and members of public
- first aid provision/medical practitioner contact & attention
- site access

Identification of hazards and assessment of risk may occur through activities such as:

- workplace inspections in area of responsibility
- consulting work team members
- housekeeping
- checking equipment before and during work
- review of records, eg injury, hazardous substances including labels and Materials Safety Data Sheet register, dangerous goods storage list, training, plan and equipment maintenance, etc

Training needs relating to Occupational Health and Safety may include:

- coaching, mentoring and/or supervision
- formal/informal learning programs
- internal/external training provision
- personal study

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Coaching and mentoring assistance may include:

- explaining/clarifying
- respecting the contribution of all participants and giving credit for achievements
- presenting and promoting a safe workplace
- problem solving
- providing encouragement
- providing feedback to another team member

Hazards and associated risks to which the work team may be exposed in the work area may include:

- blocked exits
- slippery and uneven floors
- untidy and or noisy work areas
- lack of adequate storage
- reliance on low order control measure (eg PPE) to reduce worker risk exposure instead of controlling the hazard itself
- unguarded /poorly maintained machinery and equipment
- unlabelled chemicals and substances
- ergonomically unsuitable work stations and task design, eg. repetitive work, poor lighting/ glary surfaces, non-adjustable work surfaces & seating
- internal/external threat of occupational violence and bullying

Controlling risks in the work area may include actions such as:

- application of the hierarch of control, namely:
- eliminate the risk
- reduce/minimise the risk through engineering controls, administrative controls, personal protective equipment
- regular consultation with workers

Organisational procedures for consultation and issue resolution may include:

- formal and informal meetings
- health and safety committees
- attendance of health and safety representatives at management meetings
- other committees, for example, planning and purchasing
- early response to employee suggestions, requests, reports and concerns put forward to management
- counselling/disciplinary processes

EVIDENCE GUIDE

The critical aspects, underpinning knowledge and skills identified must be demonstrated to confirm competence for this unit.

(1) Critical Aspects of Evidence

- identify and comply with Occupational Health and Safety legal and organisational requirements
- apply procedures for identifying hazards in the work area
- apply procedures for assessing and controlling risks to health & saf ety associated with those hazards, in accordance with the hierarchy of control
- provide specific, clear and accurate information and advice on workplace hazards to work group
- provide appropriate supervision of work group

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(2) Pre-requisite Relationship of units

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- the relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- hazards and associated risks which exist in the workplace
- organisation's policies and procedures relating to hazard management, fire, emergency, evacuation, incident (accident) investigating and reporting
  the relevance of Occupational Health and Safety management to other organisational systems and procedures of characteristics and composition of the workgroup

Skills
The ability to:

- understand workplace procedures and work instructions for identifying and reporting hazards and interpreting Occupational Health and Safety signs and symbols
- analysing skills to identify hazards and assess risks in the work area
- analysis data including incident (accident) monitoring environmental monitoring
- evaluation of effectiveness of risk control measures
- assess resources required to apply risk control measures
- demonstrate coaching and mentoring skills to provide support to colleagues
  relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

(4) Resource Implications

The following resources should be provided:

- access to appropriate documentation and resources normally used in the workplace

(5) Consistency of Performance

In order to achieve consistency of performance, evidence should be collected over a set period of time, which is sufficient to include dealings with an appropriate range and variety of situations

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(6) Context of Assessment

Competency is demonstrated by performance of all stated criteria, includ ing paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement

Assessment must take account of the endorsed assessment guidelines in the Busines s Services Competency Package

Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment

Assessment should reinforce the integration of the Critical Employability Skills and the Business Servi ces Common Competencies for the particular NVQ Level.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to th e seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and • procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills

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ITIDAT1523A: Establish and maintain client/user liaison

Competency Descriptor: This unit deals with the skills and knowledge required to establish and maintain client liaison in an Information Technology environment post implementation. This occurs after the business critical functions have been determined and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine the client user areas that are to be supported	1.1	Extent of the use of Information Technology in client user areas and departments are identified detailing applications, operating systems, hardware, networks and other technologies.
		1.2	Criticality of Information Technology to the client and the need for support services are determined.
		1.3	Key client users, managers, project sponsors, system owners are identified.
		1.4	Organisation structure, culture and politics in relation to support requirements are identified and analysed.
2.	Develop appropriate method of liaising with client user/group and possible contacts	2.1	Level and existence of Information Technology skills, experience and willingness to work with Information Technology are identified.
		2.2	Most appropriate management styles or approach for the various client user areas are evaluated.
		2.3	Person/s who would be suitable for liaising with, either informally or formally, is/are identified and specifically nominated.
		2.4	Availability, willingness of target nominee is checked and/or their acceptability is verified.
3.	Establish contact and develop reporting protocol	3.1	Dialogue with the contact is initiated and the scope of the liaison agreed to.
		3.2	The most appropriate method of contact, timing of meetings, reports and other arrangements are established.
		3.3	A higher authority reporting protocol agreeable to all parties is established.

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4. Maintain established communication links	4.1 Client user(s) is/are contacted as per pre-determined methods and rapport and communication channel are established.
	4.2 Feedback is actioned and all communiqués resulting from the liaison are confirmed in writing.

RANGE STATEMENT

This unit applies to activities associated with essential operations linked to establishing and maintaining client user liaison.

Liaison methods may include but are not limited to:

- websites
- web applications
- CRM technologies
- written reports
- group meetings
- one on one meetings
- e-mail, telephone call and newsletters

Client may include:

- a member of the organisation
- a department within the organisation
- the entire organisation
- an external organisation

Consultative techniques may include:

- interviews
- surveys
- chat rooms
- focus groups

Analysis techniques may include:

- gap analysis
- urgency and impact
- statistical
- a range of current methodologies

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- financial control mechanisms
- procedures governing communication with stakeholders
- dispute resolution procedures
- modification procedures
- processes for determining size and cost
- ISO standards
- organisational policies and procedures
- vendor requirements

Service level agreements may include:

- business processes and requirements
- clearly specified and quantified service levels
- evaluation or audit of service levels
- workload and performance considerations
- expectations regarding servicing
- penalties
- charge back to business units

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Information Technology may include:

- operating systems
- hardware
- out-sourced developed software
- in-house developed software
- networks

Consultative techniques may include:

- interviews
- surveys
- chat rooms
- focus groups

EVIDENCE GUIDE

Assessment must confirm the ability to establish and maintain client liaison in an Information Technology environment in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- compliance with organisational policies and procedures
- establishment of communication and reporting mechanisms consistent with the identified role as agreed to by client user
- collect, evaluate and report information on support needs
- demonstrate technical knowledge of Information Technology products and services
- demonstrate understanding of the impact of Information Technology on the client user's operations
- identification of key players and their role
- understanding of the organisational structure and culture of client's enterprise
- employ appropriate and effective liaison methods
- establish and maintain open channels of communication

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- the client business domain
- the role of stakeholders and the degree of stakeholder involvement
- the system's current functionality
- quality assurance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- consultative and analysis techniques
- service level agreements
- contact protocols

Skills
The ability to:

- analyse, evaluate and present information
- make contribution to solutions and goals of a non-routine or contingency nature
- facilitate group discussion
- communicate effectively when transferring and collecting information and gaining consensus on concepts
- demonstrate project planning skills in relation to scope, time, cost, quality, communications and risk management
- negotiate skilfully
- write comprehensive reports
- provide good customer service

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- service level agreements
- documented support requirements

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on procedures and underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1003A: Select and install a router

Competency Descriptor: This unit deals with the skills and knowledge required to select and install the best fit router to meet the technical requirements of the network.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Determine router specification	1.1 Throughput requirements of router are determined with reference to current and future network requirements.
	1.2 Current and future network capacity is determined taking into account current and future business needs.
	1.3 Network typology is identified from technical requirements.
	1.4 Media access requirements are determined with reference to current and future user requirements.
	1.5 Data link layer technologies are determined with reference to current and future user requirements.
	1.6 Network management and security requirements are determined with reference to current and future user requirements.
	1.7 All relevant documentation is prepared in accordance with enterprise guidelines and procedures.
2. Selected and install appropriate router	2.1 Router with appropriate features is selected according to technical requirements.
	2.2 Cable, wireless application protocol (WAP), connectors and other peripherals are chosen according to network requirements and router specification.
	2.3 Router is installed in accordance with enterprise guidelines and industry specifications.
	2.4 Router is configured in accordance with predetermined configuration requirements and enterprise guidelines.
	2.5 Router is tested in accordance with predetermined tests and results are compared with expected results.
	2.6 Predetermined router configuration is adapted depending on outcome of test.

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2.7 Reports and documentations are produced in accordance with enterprise guidelines and procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to selecting and installing a router.

Protocols may include:

- Novell Protocol suite:
  - Internetwork Packet Exchange (IPX)
  - Sequence Packet Exchange (SPX)
  - NetBIOS Emulator
  - Netware Core Protocol
- TCP/IP:
  - Internet Control Message Protocol (ICMP)
  - Net BT
- AppleTalk Protocol – Phase 2 (1989)
- WAN Protocols:
  - Synchronous Data Link Control (SDLC)
  - Binary Synchronous Control (BSC)
  - High-Level Data Link Control (HDLC)
  - Advanced Data Communications Protocol
  - ADCP)
  - High Level Data Link Control (HDLC)

Routers may include static and dynamic routers such as:

- Cisco 1000 to the 7000 Series Routers
- Linksys Etherfast router
- Cisco uBR7200 Universal Broadband Routers
- 3Com OfficeConnect Remote 810 ADSL
- 3Com SuperStack 400
- CISCO 760 Series ISDN
- Netopia Routers
- D-Link Routers
- Motorola Vanguard series
- Intel express Series

Router protocols may include:

- Hot Standby Router Protocol (HSRP)
- Cisco Discovery Protocol (CDP)
- (Enhanced) Interior Gateway Routing Protocol
- Routing Information Protocol
- NetWare Link State Protocol
- Open Shortest-Path First Interior Gateway Protocol
- Exterior Gateway Protocol
- Transmission of IP Datagrams Over X.25
- Point to Point Protocol (PPP)

Router network typologies may include:

- simple internet gateway
- multiple Local Area Network
- Wireless Local Area Network
- Virtual Private Network
- hybrid Local Area Network/Wide Area Network

Configuring router may include:

- issuing enabling commands
- issuing running commands
- enter configuration mode
- configuring interfaces

Testing may include:

- testing connectivity
- using ping command
- using debug commands
- using trace commands

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EVIDENCE GUIDE

Competency is to be demonstrated by selecting and installing a router in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of router functions, router protocols and router based network architecture
- read and interpret technical requirements and assess current and future needs
- determine network parameters and specifications in accordance with user and business requirement
- select and install appropriate router and accessories in accordance with specifications
- configure and test router to pre-determined requirements and make adaptations if required
- comply with enterprise guidelines and procedures and industry standards

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- command modes
- router functions
- router based network architectures
- broadcast traffic and bandwidth
- redundant paths
- intelligent packet forwarding
- routing table protocols
- routing algorithms and protocols
- dynamic routing
- router firewalls
- manufacturers' specifications
- enterprise guidelines and procedures
- industry standards
- industry codes of practice
- network security
- network management
- assessing network capacity
- network typology

Skills
The ability to:

- read and interpret technical documentation
- analyse, evaluate and present information
- determine network specifications from user and business requirements
- perform installation to specifications
- configure router
- determine tests and configurations
- select appropriate router
- solve problems
- work safely
- determine network capacity
- produce relevant reports and documentation

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- data link layer technologies
- installation procedures
- router configurations
- testing router configuration

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- network, router and accessories
- router specifications
- technical requirements for network
- enterprise guidelines and procedures and industry standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1823A: Configure an Internet Gateway

Competency Descriptor: This unit deals with the skills and knowledge required to connect network hardware devices to an Internet Gateway.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Confirm client requirements and network equipment	1.1 Customer requirements are confirmed and validated as required.
	1.2 Scope of Internet services required is determined with reference to customer requirements and enterprise guidelines.
	1.3 Considerations are given to redundancy with reference to fault tolerance, backup links and gateway configuration.
	1.4 Network components, both hardware and software, that are required to be installed are identified.
	1.5 Equipment specifications are confirmed and availability of all components is ensured.
2. Review security issues	2.1 Security features of internet gateway are assessed with reference to network architecture and enterprise security plan.
	2.2 Discussions with Internet service provider (ISP) are held concerning firewalls and other security measures as required.
	2.3 Users are briefed of enterprise security plan with reference to internet use in accordance with enterprise guidelines and procedures.
3. Install and configure gateway products and equipment	3.1 Installation and configuration processes are identified.
	3.2 Gateway products and equipment are installed and configured as required by technical requirements.
	3.3 Tests are planned and executed with reference to client requirements and network impact.
	3.4 Error report is analysed and changes made as required in accordance with enterprise policies and guidelines.

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4. Configure and test node	4.1 Node is assigned to specific gateway as required by network architecture and client requirements.
	4.2 Connection type is determined and configured with reference to network architecture and client requirements.
	4.3 Node software/hardware is configured as required according to vendor specifications and client's requirements.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to configuring an Internet Gateway.

Gateway may include:

- inter-networking technologies used to connect a private network to a public network, typically the Internet
- single gateway
- multiple gateways
- Telephony gateways
- Internet e-mail gateways

Security protocols may include:

- Secure Multipurpose Internet Mail Extensions
- Secure Socket Layer & Transport Layer Security
- IP Security Protocol
- (Domain Name System Security Extensions)
- (Data Over Cable Service Interface Specification)
- IEEE 802.11 Protocol standard for secure wireless Local Area Network products
- (Point-to-Point Network Tunneling Protocol)
- (Secure Electronic Transactions)
- (Secure Shell)

Security standards may include:

- Information security risk management guidelines
- Information security management - Code of practice for information security management
- Information security management - Specification for information security management systems

Internet use may include:

- transferring text
- transferring sound
- transferring graphical images
- transferring animation

Internet connections may include:

- dial up
- dedicated connections
- proxy connections

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Internet services may include:

- file transfer
- remote login
- accessing the world wide web
- permitting users on the internet specific types of access to the personal computers on which the daemons run

Current browser software may include:

- MS Explorer
- Netscape Navigator
- Mozilla
- Opera

Firewalls may include:

- personal firewalls
- dual-home firewalls
- three-home firewalls
- back-to-back firewalls
- use of proxy servers

Gateway software may include:

- Cisco IPExchange
- MS Workgroup Post Offices
- Lotus Notes
- O2 gateway

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to link configures an Internet Gateway in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of features, functions, installation and configuration of gateway products and equipment
- determine network and equipment specifications from client requirements
- collaboratively assess scope of internet service required and security measures
- arrive at understanding and gain consensus through effective negotiation and communication
- demonstrate the ability to connect network hardware devices to an internet gateway and configure and test them
- comply with Occupational Health and Safety, enterprise and industry policies, procedures and requirements
- prepare and present relevant reports and documentations in accordance with requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- the function and features of network gateways
- network architecture
- function and features of switches, routers, hubs, bridges
- network operating systems
- desktop operating systems
- gateway software
- current browser software
- copy write and intellectual property
- privacy
- the operation of the world wide web, web pages and directories
- network security
- usage of proprietary software
- enterprise guidelines and procedures
- manufacturers' specifications
- industry codes of practice
- industry standards
- legislative requirements
- security standards
- security protocols
- firewalls
- operations of Internet Service Providers
- Internet connections

Skill
The ability to:

- install and configure computer hardware and software
- determine specifications from requirements
- analyse, evaluate and present information
- solve problems
- negotiate effectively
- read and interpret technical documentation
- communicate effectively
- plan and perform tests
- plan and organise work
- read and interpret technical documentation

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- a network with internet access
- a personal computer
- gateway products and equipment
- relevant guidelines, procedures and standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
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Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET0823A: Create code for networking

Competency Descriptor: This unit deals with the skills and knowledge required to create utility programs for a networking environment.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Confirm requirements of utility programs in a networking environment	1.1	Specifications are correctly interpreted and confirmed with appropriate personnel.
		1.2	Program structure and logic map are prepared against requirements in accordance with enterprise policies and procedures.
		1.3	Program planning is confirmed with user following the correct procedures.
2.	Declare and assign variables and develop structured code for a networking environment	2.1	Naming conventions are correctly employed in accordance with enterprise guidelines and procedures.
		2.2	Variables are declared according to scope requirements.
		2.3	Class instances or code modules are developed as specified in requirements.
3.	Unit test each module within the networking environment	3.1	Testing routines are developed to verify the code produced actually fulfils the requirements.
		3.2	Memory structures are tested for boundary violations following the correct procedures.
		3.3	Control structures are terminated following the correct procedures.
4.	Identify exceptions within the networking environment	4.1	Exception coding areas are accurately identified in accordance with specifications and requirements.
		4.2	Exception system areas are identified in accordance with specifications and requirements.
		4.3	A global approach to exception handling is prepared in line with enterprise policies and guidelines.

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5.	Determine handling and propagation procedures for exceptions within the networking environment	5.1	An exception handling code section is developed to specifications and enterprise guidelines.
		5.2	Exceptions are caught as required in accordance with requirements.
		5.3	All try and catch routines with specific traces are documented in accordance with enterprise policies and procedures.
6.	Use debugging and error handling techniques within the networking environment	6.1	Debugging techniques are disabled for live running using the correct procedures.
		6.2	Specific documentation for error handling methods is developed in accordance with enterprise policies and procedures.
		6.3	It is ensured that external error handling methods remain highly cohesive and loosely coupled in accordance with requirements.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to creating codes for networking.

Network architecture may include:

- local network
- intranets
- Virtual Private Network
- wide area network
- based on the Internet

Systems environment may involve:

- small Local Area Network
- large Local Area Network
- small Wide Area Network
- peer to peer network

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- policies on communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

Issues for documentation and reporting may include:

- audit trails
- naming standards
- version control
- project management templates
- report writing styles

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Utility program may include:

- diagnostic programs
- trace programs
- input routines
- programs to perform routine tasks

Enterprise policies and procedures may involve:

- safety requirements
- documentation procedures
- operating procedures
- process governing communication
- use of templates
- privacy and security policies

Hardware may include Information Technology equipment of all types such as:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems
- bridges: 3Com, Compaq, CISCO, IBM
- modems, analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adapted, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron
- routers & gateways: 3Com, CISCO, D-Link, Intel
- file & printers: AcerAltos, Aerocomm, Alpha Server, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Specifications may include:

- details from project documents
- client requirements
- details from worksheet
- current and future business requirements

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

Operating system may include:

- PSOS+ (modular real-time operating system)
- UNIX
- real-time UNIX
- VRTX
- LYNX-OS
- SOLARIS
- LINUX
- DOS
- Windows
- Windows NT
- Windows CE

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to create code for networking in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of development methodologies and real-time programming
- demonstrate the ability to write code which is verifiable against the specification
- accurate interpretation of requirements
- demonstrate the ability to create and test utility programs developed for a networking environment
- development of testing and verification routines
- apply organisational quality procedures and processes
- produce relevant documentation and reports in accordance with project requirements
- compliance with all enterprise and Occupational Health and Safety requirements
- perform all tasks in accordance with established procedures, standards and enterprise policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- development methodologies
- the client business domain
- variables and assigning valuables
- debugging and error handling techniques
- programming languages
- operating systems
- real-time programming
- Input/Output drivers
- current industry accepted hardware and software products
- general features and capabilities of hardware and software
- software development configuration management process
- Occupational Health and Safety requirements
- risk management
- project planning
- testing methodologies
- size estimation
- enterprise policies and procedures
- industry standards and codes of practice

Skills
The ability to:

- apply problem solving skills
- communicate effectively
- interpret specifications
- develop testing routines
- apply algorithms skills
- analyse, evaluate and identify solutions
- apply project planning skills
- create codes
- manage risk

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- network environment
- requirements and specifications
- enterprise guidelines and procedures
- industry standards and codes of practice

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET2393A: Coordinate and monitor tests

Competency Descriptor: This unit deals with the skills and knowledge required to implement the test plan, coordinate and monitor tests being conducted on network.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan the testing of systems and equipment	1.1 Developed test plan and testing strategy is reviewed and verified with client users and the appropriate authority.
	1.2 Context, scope and objectives of required testing are established.
	1.3 The testing of systems and equipment is planned in conjunction with appropriate personnel to minimise disruptions to operational effectiveness of the system.
	1.4 Test schedule is developed to ensure correct sequencing of tests.
	1.5 Test data required to perform planned test is obtained and verified.
	1.6 Relevant staff and users are informed of testing with adequate notice in accordance with enterprise guidelines and procedures.
	1.7 Difficulties in achieving objectives are identified and viable solutions are proposed.
2. Specify the testing of systems and equipment	2.1 Information regarding work to be undertaken and expected period of testing is collated.
	2.2 Equipment and systems to be tested are specified and isolated where required in accordance with enterprise and manufacturer's guidelines and procedures.
	2.3 It is ensured that all pre-testing work activities and preparations are completed in accordance with requirements.
	2.4 Performance outcomes are specified in accordance with manufacturer's guidelines.

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		2.5 Testing requirements and procedures are specified in accordance with manufacturer's guidelines.
		2.6 Records of testing are maintained in accordance with established guidelines.
		2.7 Production of testing work plans is completed in conformance with industry and organisation regulations.
3.	Coordinate system tests	3.1 The correct test application principles and appropriate test equipment selected in accordance with defined requirements.
		3.2 Resources required to perform tests are determined, co-ordinated and are made available for the testing of systems.
		3.3 It is ensured that the correct tools and techniques are available for carrying out testing according to the enterprise guidelines and industry best practice.
		3.4 Testing of systems is coordinated to minimise disruption to the operational effectiveness of the system.
		3.5 Facility, system and site security is ensured whilst maintenance staff is on site.
4.	Monitor testing of system	4.1 Test requirements are identified and defined to standard operating procedures.
		4.2 It is ensure that the correct test application principles are selected after inspection of systems.
		4.3 Checks are made to ensure that the appropriate test equipment is selected in accordance with defined requirements.
		4.4 System isolation methods/requirements are observed and utilised.
		4.5 Appropriate test procedures and application principles are applied in assessing operation of systems.
		4.6 The normal operating characteristics of the system are understood to the level necessary to identify and localise any faults.
		4.7 Operational function assessment procedures are applied according to safety and regulatory specifications.

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		4.8 Characteristics and operational functions are checked and verified.
5.	Collect test data and localise faults	5.1 Drawings, diagrams and operational specifications are used in identifying and localising faults.
		5.2 Built in fault indicators/error codes are examined and interpreted where appropriate and the results recorded to standard operating procedures.
		5.3 Fault conditions are localised to the component level using appropriate test equipment principles and procedures.
		5.4 Records of all testing and test results are maintained according to established guidelines.
6.	Analyse and report test results	6.1 Reports on system testing are received and collated in accordance with enterprise policies and procedures.
		6.2 Test results are analysed and verified against operational specifications and localised faults confirmed.
		6.3 Potential and real faults are identified, assessed in terms of the operational efficiency of the system and are reported using standard operating procedures.
		6.4 Faulty conditions are evaluated and corrective action is planned.
		6.5 Action plan is recorded and documented according to standard operating procedures and advice provided where appropriate.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to coordinating and monitoring tests.

Details of developed test plan may include:

- number of test cycles
- source of test data
- types of test
- timescales

Objectives of testing may include:

- locating faults
- rectifying faults
- assessment of system performance
- assessing integrability of components

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Network may include but not restricted to:

- large Local Area Networks
- small Local Area Networks
- small Wide Area Networks
- large Wide Area Networks
- wireless Large Area Networks

Testing tools and equipment may include:

- multimeter
- cable tester
- network operating system log files
- network monitor
- network analyzers

Test details may include:

- type of test
- duration of test
- testing procedures
- expected results

Possible faults may include:

- operator error
- open circuits
- faulty components
- wires and/or cables wrongly terminated
- collisions
- ghosts
- signal noise
- runts
- poor network response time
- software
- faulty cables
- jabber
- giants

Resources may include:

- personnel
- material
- tools
- equipment
- financial

Tests may include checks for:

- user error
- physical connectivity
- noise level
- data loss
- software

Test environment may include:

- segment of a network
- entire system
- live system
- isolated system
- network backbone

Preparatory work may include:

- installation of components
- isolation of component or system
- removal of hazards
- notification to users

Solutions to problems may include:

- replacing components
- reconnecting cables
- patching software
- replacing cables
- reconfiguring network

Test results may include:

- voltage measurements
- resistance measurements
- captured data
- statistics
- data traffic

Test procedures may include:

- ping test
- using commands
- monitoring traffic
- usage of network analyzers

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Guidelines and procedures may include:

- enterprise policies and procedures
- industry codes of practice
- manufacturers' specifications
- regulatory requirements
- legislative requirements
- Occupational Health and Safety requirements

Documentation may include:

- equipment manuals
- operating instructions
- design specifications
- installation details
- maintenance procedures
- expected test results

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to coordinating and monitoring tests in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of system tests, system performance, leadership and management principles
- establish objectives, testing techniques and develop work plans in accordance with industry best practices and enterprise requirements
- demonstrate the ability to specify and monitor tests and interpreting results
- establish resource requirements, coordinate resources and direct work operations
- ensure correct application of systematic approach to problem diagnosis and locating faults
- source and determine expected outcomes from testing and perform operational functional assessment
- provide leadership and guidance in the selection and application of testing techniques
- ensure compliance with all related occupational health and safety requirements and standard operating procedures
- interact with enterprise personnel, users and other parties in planning to ensure common understanding of work assignments, objectives and to minimize disruptions
- supervise the effective use tools, equipment and diagnostic tools and programs
- access and provide equipment/system manuals and specifications and relevant enterprise policy and documentation
- collect, collate and analyse test results and perform comparative analysis against operational specifications
- ensure maintenance and updating of relevant records and documentation
- produce report outlining findings and including recommendations with supporting reasons

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain
- the system's current functionality
- quality assurance practices
- testing procedures
- system faults
- solutions to system faults
- diagnostic tools
- manufacturers' specifications
- risk assessment
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety procedures
- network management tools
- establishing testing environment
- established performance requirements for system
- testing strategies
- developing test plans
- operational functional assessment
- resource management
- personnel management
- nature of management and leadership
- principles of teamwork
- mentoring and coaching

Skills
The ability to:

- solve problems
- develop test schedule from established test plan
- participate in the development of strategic initiatives
- analyse, evaluate and present information
- work in a team
- plan for and deal with contingencies
- negotiate skilfully
- produce reports and all relevant documentations
- maintain the continuity of Information Technology operations and business functions
- provide excellent customer service
- coordinate and monitor tests
- resolve conflicts
- plan and organise tests
- supervise work operations
- analyse results
- rectify system problems
- develop plans and objectives
- provide support and guidance

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- established test plan and test strategies
- network
- technical tools, equipment and manuals
- expected test outcomes
- manufacturers' specifications
- enterprise and industry guidelines and procedures

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

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ITINET0993A: Install network bridges/switches

Competency Descriptor: This unit deals with the skills and knowledge required to install, configure and test network bridges/switches.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Identify bridges/ switches	1.1 Relevant data is gathered to identify network architecture and customer requirements.
	1.2 The type and number of bridges/switches to be installed is identified and validated by client with reference to network architecture and customer requirements.
	1.3 Integration plan for new processes, protocols and equipment is developed from business requirements.
	1.4 Relevant hardware and software is selected with reference to vendor architecture and equipment specifications/limitations.
2. Install and configure bridges/switches	2.1 Bridges/switches are installed according to vendor guidelines, network architecture and customer requirements.
	2.2 Bridges/switches are configured according to vendor guidelines, network architecture and customer requirements.
	2.3 Bridge/switch configuration is documented according to customer requirements and enterprise guidelines.
3. Test bridges/switches	3.1 Test plan is developed and network impact assessed in accordance with enterprise guidelines and procedures.
	3.2 Tests are prepared, scheduled and executed as required following the correct procedures.
	3.3 Errors are tracked, interpreted and reported in accordance with industry practices and enterprise procedures.
	3.4 Changes are made as required in accordance with enterprise guidelines and procedures.
	3.5 Final bridge configuration is documented as required in accordance with specifications and enterprise guidelines.

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RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to installing network bridges/switches.

Bridge purchasing considerations may include:

- flexibility of base configuration
- hardware upgrade costs
- software upgrade costs
- Wireless Local Area Network, Virtual Private Network, Local Area Network architectures supported
- remote access support for WAN bridges
- management capabilities
- performance (frames per second or transmission speeds supported)
- degree of configuration required
- user interface
- wiring supported
- security features
- data compression

Switches may include:

- 3Com Accton
- Cabletron
- CISCO
- D-Link
- Farallon
- Hewlett-Packard
- Intel
- Network Technologies

Network types may include:

- Ethernet
- Token Ring
- Fibre Distributed Data Interface (FDDI)
- Wireless Local Area Network
- Virtual Private Network
- Wide Area Network
- combinations of each type

Bridging algorithms may include:

- transparent bridging
- source route bridging
- translational bridging
- source-route transparent bridging

Bridge typologies may include:

- cascade
- backbone
- star
- campus network

Bridges may include:

- 3Com
- Compaq
- CISCO
- IBM

Configuring bridges and switches may include:

- setting port security
- set action to be taken if there is security address violation
- setting default gateway
- setting Media Access Control address

Testing bridges and switches may include:

- connectivity testing
- monitoring traffic
- monitoring throughput
- using network management tools

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Switching techniques may include:

- store-and-forward switching
- cut-through switching

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to link install network bridges/switches in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of the functions of bridges/switches, network architecture and Open Systems Interconnect data model
- read and interpret technical documentation, client requirements and plans
- develop technical solutions and plans based on interpretation of data
- assess, identify and select network components
- demonstrate the ability to install, configure and test network bridges and or switches
- solve problems and make modifications based on testing results and specifications
- produce relevant documentation and reports in accordance with guidelines
- comply with all relevant standards, guidelines and procedures
- perform all tasks in accordance with standard procedures and to specifications

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- Open Systems Interconnect (OSI) data model in relation to the operation of bridges
- the function and features of NIC addresses
- network design in relation to physical constraints and role of bridges to overcome them in terms of traffic isolation and network utilisation
- the operation of a relevant network operating system
- the function and features of bridges including filtering and forwarding, bridge tables, bridge learning, spanning tree algorithm (STA)
- the advantages and disadvantages of bridges in relation to network architecture and customer requirements
- the features and functions of checksums
- the function and features of transparent bridging
- the function and features of source route bridging
- he function and features of source route transparent bridging (SRT)
- the function and features of parallel source route bridges
- the function and features of translation bridging
- the role of Wide Area Network bridges (half-bridges)
- industry standards
- enterprise guidelines and requirements
- Occupational Health and Safety requirements
- industry codes of practice
- installation procedures
- configuration procedures

Skill
The ability to:

- install and configure simple computer components
- conduct testing
- record testing results
- critically analyse details
- read and interpret specification sheets
- organise and asses importance and relevancy of product information
- analyse and synthesize information
- diagnose performance deviations
- communicate effectively
- work safely
- solve problems

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- customer requirements
- network devices
- personal computers
- manufacturers specifications
- enterprise guidelines and procedures
- relevant industry standards and codes of practice
- relevant tools and equipment

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

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ITINET1013A: Install and configure router

Competency Descriptor: This unit deals with the skills and knowledge required to install and configure a router.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify router	1.1	Relevant data is gathered to identify network architecture and customer requirements.
		1.2	The type and number of router to be installed is identified and validated by client with reference to network architecture and customer requirements.
		1.3	Integration plan for new processes, protocols and equipment is developed from business requirements.
		1.4	Relevant hardware and software is selected with reference to vendor architecture and equipment specifications/limitations.
2.	Install and configure router	2.1	Router and peripherals are assembled in accordance with manufacturers' requirements and enterprise guidelines.
		2.2	Router is configured as per manufacturers' instructions and technical requirements taking into account interoperability requirements with network components.
		2.3	Individual workstations are reconfigured to operate within the new environment if required following the correct procedures.
		2.4	Router and peripherals are assembled in accordance with manufacturers' requirements and enterprise guidelines.
		2.5	Router configuration is documented according to customer requirements and enterprise guidelines.
3.	Test router and network	3.1	Router and peripherals are tested in accordance with manufacturers' instructions and technical requirements.
		3.2	Network hardware and router are tested to ensure full functionality and interoperability using the correct procedures.

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3.3 Additional network hardware is reconfigured as required following the correct procedures.

3.4 Adjustments to network made depending on test results in accordance with enterprise guidelines and procedures.

3.5 Final router and network configuration is documented as required in accordance with specifications and enterprise guidelines.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing and configuring router.

Router protocols may include:

- Hot Standby Router Protocol (HSRP)
- Border Gateway Protocol (BGP)
- (Enhanced) Interior Gateway Routing Protocol
- Routing Information Protocol
- NetWare Link State Protocol
- Open Shortest-Path First Interior Gateway Protocol
- Exterior Gateway Protocol
- Transmission of IP Datagrams Over X.25
- Point to Point Protocol (PPP) authentication

Routed protocols may include:

- Novell Protocol suite:
  - Internetwork Packet Exchange (IPX)
  - Sequence Packet Exchange (SPX)
  - NetBIOS Emulator
  - Netware Core Protocol
- TCP/IP
- Internet Control Message Protocol (ICMP)
- Net BT
- Dynamic Host Configuration Protocol (DHCP)
- AppleTalk Protocol – Phase 2 (1989)
- WAN Protocols:
  - Synchronous Data Link Control (SDLC)
  - Binary Synchronous Control (BSC)
  - High-Level Data Link Control (HDLC)
  - Advanced Data Communications Protocol (ADCP)
  - High Level Data Link Control (HDLC)

Routers may include static and dynamic routers:

- Cisco 1000 to the 7000 Series Routers
- Linksys Etherfast Router
- Cisco uBR7200 Universal Broadband Routers
- 3Com OfficeConnect Remote 810 ADSL
- 3Com SuperStack 400
- CISCO 760 Series ISDN
- Netopia Routers
- D-Link Routers
- Motorola Vanguard series
- Intel express Series

Routing algorithms type may include:

- static
- dynamic
- single-path
- multipath
- flat
- hierarchical
- host-intelligent
- router-intelligent
- interdomain
- intradomain
- linked-state
- distance vector

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Operating systems may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

Router network typologies may include:

- simple internet gateway
- multiple Local Area Network
- Wireless Local Area Network
- Virtual Private Network
- hybrid Local Area Network/Wide Area Network

Routing metric may include:

- path length
- reliability
- delay
- bandwidth
- load
- communication cost

Routing tables variables may include:

- varying distance between routers
- packet size
- available line speed
- network protocols

EVIDENCE GUIDE

Competency is to be demonstrated by installing and configuring router in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of router functions, routing protocols and router based network architecture
- read and interpret technical documentation, client requirements and plans
- develop technical solutions and plans based on interpretation of data
- assess, identify and select network components
- demonstrate the ability to install and configure a router for optimum performance and operation of the network
- solve problems and make modifications based on testing results and specifications
- produce relevant documentation and reports in accordance with guidelines
- comply with all relevant standards, guidelines and procedures
- perform all tasks in accordance with standard procedures and to specifications

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- router functions
- router based network architectures
- broadcast traffic and bandwidth
- redundant paths
- intelligent packet forwarding
- routing table protocols
- routing algorithms and protocols
- dynamic routing
- static routing
- router firewalls
- installation procedures
- configuration procedures
- manufacturers' specifications
- enterprise guidelines and procedures
- industry standards
- industry codes of practice
- network testing
- integration planning
- Occupational Health and Safety requirements
- network operating systems

Skills
The ability to:

- configure router protocols
- configure network peripherals
- select and install a router
- conduct network testing
- communicate effectively
- read and interpret technical documents
- solve problems
- work safely
- develop plans
- produce relevant documentation

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- network environment
- router and other components
- documentation on the network topography
- relevant network requirements and specifications
- relevant standards, guidelines and procedures

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET0983A: Install intelligent hub

Competency Descriptor: This unit deals with the skills and knowledge required to select, install and test a network hub.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Determine hub specification	1.1 Current and future network capacity is determined according to current and future business requirements.
	1.2 Number and type of hubs is determined with reference to current and future network requirements.
	1.3 Network typology is determined in accordance with industry and enterprise best practices.
	1.4 Network management and security requirements are determined in accordance with industry practices and enterprise guidelines.
2. Select appropriate hardware	2.1 Hub/s with appropriate features is/are selected according to required specification.
	2.2 Other network devices are chosen according to network requirements and enterprise policies and guidelines.
3. Install hub and supporting peripherals	3.1 Hub and peripherals are assembled in accordance with manufacturers' requirements and enterprise guidelines and procedures.
	3.2 Hubs are connected and disengaged appropriately, if more than one hub is required.
	3.3 Cable is used to connect the In/Out ports (or other ports depending the hubs) to connect hubs following the correct procedures.
	3.4 Power is connected to each hub and is switched on following the correct procedures and in compliance with safety requirements.
	3.5 A valid network connection is established with network device/s.

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	3.6	Terminal emulation software is configured to operate within the new environment if required following the correct procedures.
	3.7	All installation and configuration activities are documented in accordance with enterprise guidelines and procedures
4. Test hub and network	4.1	Hub and network devices are tested in accordance with manufacturers' requirements and/or enterprise guidelines.
	4.2	It is ensured that the network does not break into isolated sections or fails.
	4.3	Adjustments to network are made depending on test results in accordance with manufacturers' specifications and enterprise guidelines.
	4.4	Adjustments to network are documented in accordance with enterprise guidelines and procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing intelligent hub.

Factors determining hub capacity may include:

- redundancy
- Local Area Network topology support
- port switching capabilities
- segment switching capabilities
- migration capabilities
- reliability
- expandability

Hubs may include the following vendors produce hubs:

- Intel
- CISCO
- 3Com
- System 3000 Ethernet

Network topography may include:

- Wireless Local Area Networks
- Virtual Private Network
- Local Area Networks
- Local Area Networks within Wide Area Networks

Other network devices may include:

- workstations
- personal computers
- servers
- routers

Network management requirements may include:

- traffic monitoring
- data filtering
- data analyzing
- remote management
- providing troubleshooting information

Security requirements may include:

- 'close' user group access
- 'open' user group access
- capacity to disable ports after security breach
- controlling the amount of traffic

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Operating systems may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install intelligent hub in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of network typologies, types of hubs and their capacities and functions
- assess current and future network requirements through interpretation of technical documentation
- identify and select appropriate hub/s and other network devices to fulfil network requirements
- determine and resolve network management and security requirements
- demonstrate the ability to install hub/s, cables and other network devices without the network splitting or failing
- perform configuration and testing of hub(s) and other devices to specifications
- produce relevant documentation and reports in accordance with guidelines
- comply with all relevant standards, guidelines and procedures
- perform all tasks in accordance with standard procedures and to specifications

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- enterprise guidelines and procedures
- industry standards
- industry codes of practice
- Occupational Health and Safety requirements
- network operating systems
- network hardware and software components
- installation procedures
- configuration procedures
- testing procedures
- differences between standard hubs and switching hubs
- structured wiring
- common network cable types and connectors
- main types of smart hubs
- common network typologies
- advantages and disadvantages of hubs
- hub functional analysis
- configuring a workstation within a network environment
- assessing network capacity
- network management
- network security

Skills
The ability to:

- solve problems
- perform hub functional analysis
- carry out cabling
- configure a workstation within a network environment
- read and interpret technical documentation
- assess network requirements
- perform installation tasks to specifications
- work safely
- analyse, evaluate and present information
- perform configuration and testing
- make modifications based on analysis of results
- produce relevant documentation

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- network requirements
- hub/s
- network devices and personal computers
- enterprise guidelines and procedures
- manufacturers' specifications
- industry standards and codes of practice

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

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ITINET1383A: Maintain system integrity

Competency Descriptor: This unit deals with the skills and knowledge required to protect and secure stand-alone or client server environments and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Carry out file maintenance	1.1 File back-ups are carried out using the correct procedures and adhering to guidelines.
	1.2 Back-ups are determined and stored according to organisational guidelines.
	1.3 Records of back-up are maintained in accordance with policies and guidelines.
2. Carry out virus scanning	2.1 Virus protection is maintained in accordance with procedures and guidelines.
	2.2 Detected viruses are reported to supervisor and are removed using the correct procedures.
3. Follow software copyright procedures	3.1 Software licences are monitored in line with organisation policies.
	3.2 The identification and determination of illegal software followed organisational policies and guidelines.
	3.3 Illegal software is promptly reported to supervisor.
4. Record software licences	4.1 Licensed software is determined in accordance with policies.
	4.2 Records of licence number and location are accurately maintained.
	4.3 Personal computers and networks are checked for illegal software.
	4.4 Illegal software is promptly reported to supervisor.
5. Restore system back-up	5.1 Back-ups are restored using the correct procedures.
	5.2 Restore procedures are determined according to the organisational guidelines.

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5.3 Restore is carried out under supervisor instruction.

5.4 Restore carried out is recorded according to the organisational guidelines.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to maintaining system integrity.

Applications may include presentation applications contained in:

- Microsoft Office,
- Lotus Suite,
- Claris Works
- Star Office
- similar applications

Hardware may include but are not limited to:

- personal computers
- networked systems
- tools to perform back-ups such as tapes
- streamers
- floppy disks

Antivirus software applications may include but are not limited to:

- McAfee
- Panda Antivirus
- Protector Plus Antivirus
- Pelican Software's SafeTNet
- Symantec's Norton Antivirus
- Command Antivirus
- ESafe
- Vet

Organisation procedures may include but are not limited to:

- security procedures
- back-up procedures
- virus removal procedures
- software licence documentation
- reporting of illegal software
- restore procedures

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to protect and secure stand alone or networked client server environments and operating systems according to system maintenance procedures, undertaking file back-up, restoration, deleting and archiving according to back-up and restore procedures in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- perform tasks to specification
- maintenance of system security
- compliance with copyright policies

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Critical Aspects and Evidence (Cont'd)

- protect and secure system
- maintenance of files and back-up systems
- carry out proper documentation and reporting procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- software copyright responsibilities
- system performance
- maintenance procedures
- inventory procedures
- restore procedures
- storage and retrieval guidelines
- operating systems
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- diagnostic tools
- current viruses and protection methods

Skills
The ability to:

- present information clearly
- perform diagnostic procedures
- use questioning and active listening to clarifying instructions
- conduct analysis in relation to system integrity
- solve problem
- conduct research
- identify features of current viruses
- perform best practice in virus protection
- use diagnostic tools

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- anti-virus software
- back-up guidelines

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

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Method of Assessment (Cont'd)

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 3	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT1593A: Evaluate system status

Competency Descriptor: This unit deals with the skills and knowledge required to evaluate the current status of a running system, covering both hardware and software aspects to determine system performance and reliability.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Determine scope and evaluation parameters	1.1 Scope of the evaluation including personnel, hardware, software, warranty, maintenance, support and other aspects is determined.
	1.2 Organisational reporting requirements are complied with when planning a 'change of status' test.
	1.3 Reason for the evaluation, its objectives, deliverables and key performance indicators are reviewed using appropriate capacity tools.
	1.4 Time, environment, internal and external issues are factored in when planning status evaluation.
	1.5 Affected users are alerted if evaluation is likely to impact their operation or if they need to be involved in it.
	1.6 A plan for the evaluation is developed and the resources and methods to be used are identified.
2. Carry out evaluation	2.1 Resources are organised as outlined in the plan and evaluation methods, whether they be manual or computerised, are put in place.
	2.2 Evaluation process is run for the required time and detail following the correct procedures.
	2.3 Status is documented and recorded as per procedural parameters and plan.
	2.4 Effects are observed and documented during the evaluation, and any changes to system status are made in accordance with the effect being evaluated.
	2.5 Any effects that are not listed and which may require further investigation are observed.

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3.	Report on evaluation	3.1 A report to the nominated addressee indicating the results of the status check is prepared in accordance with enterprise guidelines and procedures.
		3.2 Any anomalies observed in the status check, which were outside the expected results, are highlighted.
		3.3 Recommendations for changes are made to improve the system, if necessary.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to evaluating system status.

The scope of the assessment may be specific or a general system wide status and may cover:

- hardware
- software
- networks
- data
- processes

Evaluation parameters may vary depending on:

- the site
- the system to be evaluated

Hardware may include:

- workstations
- bridges
- modems
- servers
- network cards
- switches
- hubs and repeaters
- routers and gateways
- file and print servers

Operating system may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- Mac OSX
- Linux
- NetWare

Software and applications may include:

- packaged software
- in-house developed software
- out-sourced development

The amount of maintenance, change and tailoring that can be undertaken will vary.

Client user may include:

- a member of the organisation
- a department within the organisation
- the entire organisation
- an external party

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Documentation and reporting includes:

- maintaining standards of definition
- maintaining standards of format
- user access information

Information should be clear and written in such a way that the target audience will readily understand it. Reports must meet the specific output requirements and are presented in a logical and accessible manner.

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to evaluate system status in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- applying organisational quality procedures and processes
- performing all tasks in accordance with standard operating procedures
- compliance with reporting and documentation requirements
- determination of scope and parameters of evaluation
- review and evaluation of all processes using the relevant tools/resources
- development and implementation of evaluation plan
- demonstrate the ability to identify comprehensive performance indicators to determine system performance and reliability in relation to both hardware and software
- use effective consultative processes
- revise plans to deal with contingencies
- document anomalies and make recommendations for improvements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- help desk and maintenance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the role of stakeholders and the degree of stakeholder involvement
- client business domain
- system's current functionality
- quality assurance practices
- change management tools
- system testing
- change control procedures
- the system under modification
- capacity planning

Skills
The ability to:

- solve problem
- develop strategic initiatives
- analyse, evaluate and present information
- work in team
- contribute to solutions and goals
- facilitate group discussions
- communicate effectively
- gain consensus on concepts
- negotiate skilfully
- write comprehensive reports
- demonstrate change management skills in maintaining the continuity of IT operations and business functions
- provide good customer service
- handle difficult clients
- resolve conflict
- undertake risk analysis
- perform low level training analysis
- perform basic programming

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- live system

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET2363A: Evaluate vendor products and equipment

Competency Descriptor: This unit deals with the skills and knowledge required to evaluate a range of vendor products and equipment against a client's business requirements.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Establish business requirements	1.1 Accurate, complete and prioritised business requirements are identified through functional analysis.
	1.2 Conflicting or overlapping requirements are identified.
	1.3 Functional/business requirements are validated by client in accordance with enterprise guidelines and procedures.
	1.4 Available resources and budget are identified and validated by client in accordance with enterprise policies and procedures.
	1.5 Scope of work is defined and validated by client in accordance with enterprise policies and procedures.
2. Identify vendor products and equipment	2.1 Relevant products and equipment are identified with reference to business requirements.
	2.2 Interdependencies are identified and documented as required.
	2.3 Technical alternatives are identified against business requirements.
	2.4 Products and equipment are researched for availability.
3. Evaluate vendor products, services and equipment	3.1 Customer support and satisfaction is rated against established criteria.
	3.2 Vendors are rated for quality and support documentation against established criteria.
	3.3 Specifications and limitations are accounted for and assessed with reference to business requirements.
	3.4 Candidate products and equipment are documented for performance and integration capabilities and cost in accordance with enterprise guidelines and procedures.

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		3.5 Cost/benefit analysis report is completed in which time, technology and resource constraints are identified.
4.	Prepare evaluation report	4.1 Evaluation documentation/information is produced that is accurate, clear and concise and linked to business needs.
		4.2 Product and equipment analysis is evaluated against business requirements.
		4.3 Best product and equipment solution, including limitations, is identified and documented in accordance with enterprise guidelines and procedures.
		4.4 Prepared report containing solution is validated by client in accordance with enterprise policies and procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to evaluating vendor products and equipment.

Hardware may include but not limited to:

- routers
- bridges
- servers
- personal computers
- drives
- switches
- printers
- hubs
- modems
- personal organisers
- firewalls
- peripherals

Software may include but not limited to:

- network operating systems
- payment software
- personal computer operating systems
- database software
- encryption protocols
- accounting software
- web browser software
- website building software
- spreadsheet software

Identification of system components may require consideration of the following:

- current business and Information Technology strategic plans
- data models
- functional process descriptions
- user requirements
- architectures
- standards
- service levels

Method of supplier selection may include:

- well defined tender processes
- advertising to the open market
- using existing suppliers
- using preferred supplier lists
- Registration of Interest (ROI)
- Request for Information (RFI)
- Request for Proposal (RFP)

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Business requirements may include:

- increase throughput of system
- replacing components
- upgrading software
- expanding capacity of system

Resources may include:

- technical personnel
- hardware equipment
- software
- tools and material

Product specifications may include:

- maintenance requirements
- features
- integration capabilities
- power requirements
- operating environment

Product limitations may include:

- speed of operation
- cost
- fragility
- high maintenance requirements
- limited integration capabilities

Policies and guidelines may cover:

- customer service requirements
- budgeting
- technical resources
- time
- relevant legislative and organisational Occupational Health and Safety requirements

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to evaluate vendor products and equipment in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of functional analysis and product, equipment and services evaluation
- collaboratively determine client's current and future business requirements, identify resources required and establish scope of work involved
- access appropriate information sources and research, analyse and evaluate required information
- demonstrate the ability to evaluate a range of vendor products and equipment against a client's functional requirements
- provide viable technical solutions, determine integration capabilities and perform cost/benefit analysis
- prepare and present relevant documentation and reports in accordance with requirements
- conduct all tasks in compliance with established policies and procedures and industry best practices

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current and future technical features and operations of the systems
- features and function of relevant hardware components
- features and function of relevant software products
- interaction between relevant hardware and software products
- client business domain
- current industry accepted hardware and software products with knowledge of general features and capabilities
- vendor product directions
- copyright and intellectual property
- legislations and guidelines governing privacy
- enterprise policies, guidelines and procedures
- industry standards
- industry codes of practice
- functional analysis
- cost/benefit analysis
- vendors and their products
- tendering processes
- suppliers and supplier selection
- procurement methods
- resource requirements for technical solutions
- production specifications
- product limitations
- evaluating vendor products and services
- evaluation of customer satisfaction
- preparation of evaluation reports

Skills
The ability to:

- identify and access key sources of information
- read and understand specification sheets
- accurately summarise and document information
- determine the conflicts and integration capabilities between diverse equipment
- organise and asses importance and relevance of product information
- communicate with vendors and client effectively
- organise performance deviations
- determine system components to be acquired
- determine methods to acquire components
- prepare relevant documentation and reports
- analyse, evaluate and present information
- provide technical solutions

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- client functional requirements
- hardware and software specifications from vendors
- enterprise policies and procedures

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT0073A: Maintain ethical conduct

Competency Descriptor: This unit deals with the skills and knowledge required to maintain professional and ethical conduct when dealing with clients, employers and colleagues and applies to individuals operating in the Information and Communication Industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Protect the interests of clients	1.1	Continuity of computing services and information flow as expected of job role is ensured.
		1.2	The integrity and security of information of other individuals are maintained in accordance with privacy legislation and company policy.
		1.3	Potential conflicts of interest are accurately identified and articulated as quickly as possible to the relevant parties.
		1.4	Client interests including confidentiality and proprietary rights are rigorously maintained.
2.	Produce quality products and services	2.1	The appropriate products and services are provided which match the operational and financial needs of clients and employers.
		2.2	Services and products produced for clients and employers are ensured to be of the highest quality.
		2.3	Work is consistently maintained to industry and international standards.
		2.4	Quality processes are thoroughly implemented when developing products and maintaining service.
		2.5	Products produced for clients and employers are the best possible fit to their needs.
3.	Ensure correct representation	3.1	Professional skills, knowledge and qualifications are correctly presented.
		3.2	Services and products developed by self and others are correctly acknowledged.

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		3.3 Information provided to employers and clients is always unbiased and professionally qualified.
		3.4 Estimates for work are as realistic as possible, taking into considering the stages of work, budget constraints and ability to influence project stages.
4.	Maintain good work practices	4.1 Work practices are consistently employed that protect and promote the health and safety of self and others.
		4.2 Colleagues and employees are treated equitably and professionally at all times.
		4.3 Colleagues, clients and employees are not misled at any time regarding the suitability of services or products.
		4.4 Professional opinion is clearly qualified based on expertise or knowledge limitations.
		4.5 Professional skills and knowledge are continually updated and upgraded.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to maintaining professional and ethical conduct.

Legislation, codes and national standards may include:

- Occupational Health and Safety
- industry code of practice
- access and equity legislation
- copyright laws
- defamation laws
- privacy legislation
- intellectual property laws
- confidentiality requirements
- legal and regulatory policies affecting e-business

Knowledge of organisation may include:

- organisational structure
- management of workers
- acquisition of information
- partnering with other organisations and groups to achieve effective functioning, efficient operations and cultural shifts

Guidelines may include but are not limited to:

- legal
- security
- ethical
- customer service
- conflict of interest

Professional development aids may include:

- seminars
- courses
- professional membership requirements
- industry updates

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Information to be secured include:

- client personal information
- company database
- financial information
- passwords
- organisation business plans
- any business conducted with client

Producing quality products and service may include:

- providing good customer service
- providing sound advise to clients
- products meet quality requirements
- give honest and realistic work estimates
- products satisfy client requirements

Conflict of interest may include:

- member of the organisation having an interest in the business of a competitor
- conducting business with client who is a family member
- placing one's personal interest ahead of the client's and the organisation's

EVIDENCE GUIDE

Competency must be demonstrated by the ability of the candidate to conduct his/her work practices in an ethical and professional manner in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is critical that competency is observed in the following aspects:

- demonstrate compliance with organisational policies and procedures
- ensuring the confidentiality and security of information
- provide honest and reliable service
- produce highest quality products
- promote the interest of the client
- improve ones own skills and knowledge
- maintain ethical and professional conduct

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- Occupational Health and Safety legislations
- organisational requirements on customer service
- copyright and intellectual property laws
- access and equity legislations
- international privacy laws
- statutory regulations governing conducting business

Skills
The ability to:

- demonstrate professional development skills in relation to identifying personal skills requiring skill upgrading and updating
- research and identify relevant courses, seminars or industry information
- maintain security and confidentiality
- maintain good work practices
- provide good customer service

(4) Resource Implications

The following resources should be made available:

- work environment (actual enterprise or simulated
- relevant standards and regulations

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on procedures and underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

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ITINET1114A: Scope implementation requirements

Competency Descriptor: This unit deals with the skills and knowledge required to define boundaries and deliverables of an installation project.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Confirm scope with parties	1.1 Project plan and other documentation are reviewed to determine installation requirements and other implementation issues.
	1.2 A preliminary scope document is developed and distributed to identified parties following the established procedures.
	1.3 Implementation areas to be further developed are identified with project team.
	1.4 Requests for revisions to scope are reviewed/negotiated with client users and system developers in accordance with enterprise guidelines and procedures.
	1.5 Final documentation is prepared according to project standards in accordance with enterprise guidelines and procedures.
	1.6 Key dates or events are specifically reviewed in terms of conflict with scheduled events following established procedures.
2. Update plans to account for scope	2.1 Implementation plans are reviewed or developed taking into account the scope of the system in accordance with enterprise guidelines and procedures.
	2.2 Revised plans and documentation are confirmed with client users.
	2.3 Project plan is signed-off by higher authorities in accordance with enterprise policies and procedures.
3. Develop project plan	3.1 Agreed implementation plan is clarified with implementation team.
	3.2 Project plan and background information is presented and handed over according to project requirements.

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3.3 Technical advice is provided during implementation regarding project plan and according to service level agreements.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to scooped implementation requirements.

Implementation requirements may include but are not limited to:

- milestones and time line
- project objectives
- project constraints
- financials
- resources required
- roles of involved parties
- equipment/software to be installed
- description of outcomes (deliverables)
- customer acceptance criteria

Project related resources or material will vary from project to project and across organisations and may include but is not limited to:

- supplier proposals
- resources included in preparation of proposal (customer and supplier)
- implementation/delivery of installation project
- equipment/software specifications

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems: analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Implementation site may include:

- specific site in building/s where the equipment is to be installed
- implementation at multiple locations in one building
- building-wide implementation

This unit of competence will not include implementation of multiple sites across a city, a state, country or many countries.

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Scope definition is to be expressed by clearly defined boundaries including:

- product breakdown structure (a cascade of hardware, software and components)
- organisation breakdown structure (a cascade of resource types, skill types or activities)
- work breakdown structure (a cascade of the products and work activities)
- comprehensively defined products and activities

Client User may include:

- department or unit within the enterprise
- entire enterprise
- external customer
- existing customer
- new customer

Standards may include:

- Industry standards
- ISO standards
- Quality benchmarks

Policies and procedures may include:

- implementation of financial control mechanisms
- communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost
- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates

Software may include:

- packaged software
- in-house developed software
- out-sourced developed software
- customised software

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to scope implementation requirements in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of project planning, implementation planning and issues surrounding implementation of information technology solutions
- interpret plans to identify and determine installation requirements and issues
- demonstrate the ability to identify and convey a clear understanding of project deliverables, boundaries and roles across all involved parties
- demonstrate the ability to consider and document implementation approach, implementation drivers, measures of success, implementation by functional area and implementation coordination
- ensuring that all issues relating to the scope of the implementation are considered and appropriate choices made given the implementation approach and measures of success
- prepare relevant plans and documentations to requirements
- compliance with enterprise and industry guidelines, procedures, standards and requirements

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- Information Technology related services and issues
- Information Technology installation services and issues
- role of stakeholders and the degree of stakeholder involvement
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain
- pre-requisites needed for system installation
- vendor specifications and requirements for installation
- legislative requirements relating to cabling and building preservation
- vendor product directions
- project planning
- implementation planning
- enterprise guidelines and procedures
- industry standards and quality benchmarks
- risk management
- scoping projects requirements

Skills
The ability to:

- solve problems
- participate in the development of strategic initiatives
- identify implementation areas to be developed read and interpret technical documentation
- communicate effectively
- analyse, evaluate and present information
- revise plans and documentation
- negotiate effectively
- work in a team
- facilitate group discussions to gain consensus on concepts
- leadership work team
- provide guidance for achieving outcomes
- assess risk
- analyse, evaluate and identify issues
- manage risk
- produce relevant plans and documentation
- comply with guidelines and requirements
- apply project planning skills

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- project plan and relevant documentation
- enterprise guidelines and procedures
- Industry standards and quality benchmarks

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1134A: Evaluate and negotiate vendor offerings

Competency Descriptor: This unit deals with the skills and knowledge required to identify a vendor to supply components and to negotiate with the vendor.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Develop benchmarks	1.1 System requirements are analysed and areas that require benchmark evaluation are identified.
	1.2 Benchmark criteria are documented and the required performance and functional specifications are listed in accordance with enterprise policies and procedures.
	1.3 Mandatory system requirements are identified in line with industry best practices.
	1.4 Weightings that measure the importance of the requirements are developed in accordance with enterprise policies and procedures.
2. Select method to be used for finding vendor	2.1 Organisation's purchasing policy is evaluated to determine any required method of selecting vendors.
	2.2 Options for vendor selection are considered and recommendations on preferred method are made in accordance with enterprise policies and procedures.
	2.3 Method to be used for selection is documented and the selection process is planned in accordance with enterprise guidelines and procedures.
3. Review vendor offerings	3.1 Agreed company Information Technology strategic direction method is used to notify vendors of requirements following the correct procedures.
	3.2 Evaluation process is undertaken by comparing vendor offerings against company requirements.
	3.3 Vendor demonstrations and performance benchmark tests are organised.
	3.4 Evaluation and selection based on servicing, warranty and after sales service commitment is participated in.

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4. Prepare contracts and delivery requirements	4.1 Contracts are reviewed and prepared for higher authority review following established procedures.
	4.2 Delivery arrangements are identified with suppliers and are confirmed with client in accordance with enterprise guidelines and procedures.
	4.3 Installation responsibilities are clarified with suppliers against implementation plan.
	4.4 Warranty and support requirements are reviewed with suppliers against service level agreements.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to evaluating and negotiating vendor offerings.

Acquisition method may include but is not limited to:

- purchasing new or used components
- leasing new or used components
- rental of new or used components
- refurbishing existing component
- outsourcing services

Different acquisition methods can be found in Information Technology strategy papers, or through discussions with Information Technology Director, Finance Director and suppliers.

System components may include but are not limited to:

- acquisition of products or services
- hardware such as personal computers, networks, printers, etc.
- software such as applications, utilities, operating systems
- facility management
- integration and/or implementation services

Method of supplier selection may include:

- well defined tender processes
- advertising to the open market
- using existing suppliers
- using preferred supplier lists
- Registration of Interest (ROI)
- Request for Information (RFI)
- Request for Proposal (RFP)

Details of contract agreements may include:

- components or services to be supplied
- delivery mechanisms
- support services
- payment mechanisms
- cost
- time
- warranties

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Details of delivery arrangements may include:

- delivery date
- location
- contact point and telephone
- components to be delivered
- partial or full delivery

Details on support requirements may include:

- maintenance agreements
- help desk support
- one to one training
- group training
- resources and personnel

Policies and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

Warranty agreement may include details on:

- coverage over pre-determined period after customer acceptance of component/s
- replacement or repair of components
- services or components to be covered
- level of support

Installation responsibilities may include:

- installation by supplier
- installation by customer
- installation by contracted third party
- training in installation procedures

Standards may include:

- Occupational Health and Safety standards
- company requirements
- quality benchmarks
- statutory and legislative requirements
- vendor requirements
- ergonomic and environmental requirements

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to evaluate and negotiate vendor offerings in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- determine mandatory system requirements and develop criteria and benchmarks through analysis and evaluation
- demonstrate the ability to identify an appropriate vendor according to enterprise requirements to supply services and components
- select acquisition approach consistent with the technical and business requirements
- document acquisition approach providing clear identification and specification of the business and technical requirements
- identify the selection criteria and seek to identify the qualifications of vendors invited to submit proposals
- selection of tender against the identified benchmarks
- ensure that all issues relating to different acquisitions methods were considered and appropriate choices made given the enterprise policy
- collaboratively determine and review contract agreements, suppliers obligations and delivery arrangements

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Critical Aspects and Evidence (Cont'd)

- prepare and present relevant agreements, documentations and criteria
- compliance with enterprise and industry standards, policies, guidelines, best practices and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- the client business domain
- client's business and technical requirements
- technical requirements of the system
- system performance and functional specifications
- benchmarks and criteria for evaluating system performance
- vendor selection methods
- tendering processes
- acquisition approaches for products and services
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- vendor product directions
- quality assurance practices
- information gathering techniques
- change management systems
- risk management
- financial management of lease arrangement
- benchmarking methodologies
- contractual and delivery arrangements
- warranties and support arrangements
- enterprise policies, guidelines and procedures
- industry standards and best practices
- implementation planning
- evaluation processes for vendor products and services

Skills
The ability to:

- solve problems
- communicate effectively
- establish criteria and benchmarks
- determine performance and functional specifications
- select vendors
- evaluate products and services
- negotiate effectively
- read and interpret technical information
- access information sources
- analyse, evaluate and present information
- prepare documentations and reports
- prepare and review contracts
- assess risks
- perform comparative analysis
- manage costs
- work with others
- plan and organize activities

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- current business and Information Technology strategic plans
- data models
- functional process descriptions
- user requirements
- relevant information on vendor products and services
- architectures and service levels
- enterprise policies, guidelines and procedures
- industry standards and codes of practice

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

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ITINET1144A: Implement and handover system components

Competency Descriptor: This unit deals with the skills and knowledge required to ensure that the system is operational prior to client use.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Confirm system integrity	1.1 Functioning of system components as per specification in both a stand alone and complete manner is checked in accordance with industry best practices.
	1.2 Any shortcomings or problems are reviewed with client and an action plan is formulated according to project requirements.
	1.3 All changes made as a result of testing are fully documented and are checked in accordance with standards and procedures.
2. Provide operation and maintenance guidance	2.1 Operation issues and procedures are identified and discussed with client in accordance with implementation and support requirements.
	2.2 Maintenance issues are discussed with maintenance group and all supporting documentation is completed in accordance with standards.
	2.3 Maintenance and support service to be provided to client are identified with client against service level agreements.
	2.4 Warranty considerations are reviewed with client in accordance with service level agreements and implementation plans.
3. Hand system to client	3.1 Installed system is demonstrated to meet the standards identified in the agreed implementation plan and is completed to requirements.
	3.2 Sign off is obtained from client to signify satisfaction with the system in accordance with enterprise guidelines and procedures.
	3.3 Short term implementation support phase is discussed with client and any milestones to be met are agreed to in accordance with enterprise guidelines and procedures.

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3.4 Further action items, training needs and amendments are discussed, documented and submitted to relevant authority for action.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to implementing and handing over systems components.

Details of Service Level Agreements (SLA) may include:

- business processes and requirements
- clearly specified and quantified service levels
- performance, tracking and reporting
- customers duties and responsibilities
- fees and expenses
- problem management

System components may include but are not limited to:

- hardware
- services
- software
- operating system
- network and communications equipment and software

Systems test may include:

- confirming existing components are compatible with newly installed components
- assessing viability of completely new system
- evaluating speed of system
- evaluating capabilities of system

Shortcomings of system may include:

- low throughput of system
- data loss
- inadequate security and protection
- inability to access network when required

Details of project plan may include:

- parties and their responsibilities
- project scope
- project schedule
- project budget

Action plan may include:

- replacement of components
- reconfiguration of system
- addition of components
- changing topology

Acceptance criteria may include:

- business rules and requirements
- performance
- operational considerations
- compliance with user functional specifications

Warranty considerations may include:

- time period
- coverage
- mechanism for resolution of problem
- responsibilities of user

Demonstration of installed system may include:

- providing verbal instructions
- live demonstration
- client operating the system
- providing one to one instructions
- use of audio-visual aids
- remote support

Short term implementation support may include:

- support personnel preset on-site
- provision of training
- operating system until users are able to do so
- providing access to help desk

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to implement and hand over system components in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of evaluating and confirming system integrity and post implementation support
- conduct testing and evaluate of system in accordance with established criteria
- identify shortcomings of the systems and make the appropriate modifications where required
- demonstrate the ability to confirm system integrity and verify that implementation was completed to specifications
- satisfactorily demonstrate system performance to clients and obtain verification from client
- establish viable operational and maintenance procedures and provide appropriate guidance to client
- discuss and confirm support and servicing parameters and obligations in accordance with implementation plans and service level agreements
- verify that all requirements and specification have been met and hand over system to client in accordance with established procedures
- prepare all relevant documentation and reports in accordance with requirements
- compliance with all safety and operational standards, policies, guidelines and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current business practices in relation to preparing reports
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- vendor product direction
- client business domain
- role of stakeholders and the degree of stakeholder involvement
- quality assurance practices
- confirming system integrity
- information gathering techniques
- change management systems
- project planning
- contents of project plans - constraints, guidelines and deadlines

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- general operational procedures for Information Technology system
- Occupational Health and Safety requirements
- implementation planning
- testing methodologies
- enterprise guidelines and procedures
- industry standards and codes of practice
- technical operations of the system
- maintenance and support services after implementation
- sign off and hand over procedures
- service level agreements
- warranties and service agreements

Skills
The ability to:

- negotiate effectively
- solve problems
- communicate effectively
- conduct testing and evaluations
- plan and organise activities
- determine specifications and requirements
- make modifications to system
- work safely
- identify, discuss and review operational and support issues
- provide operational and support guidance
- prepare technical reports
- identify maintenance and support services
- gain consensus and agreement on issues
- analyse, evaluate and present information
- confirm system integrity

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- a customer computer site and system or simulation
- project plan
- service level agreements
- implementation plan and people involved in handover
- enterprise policies, guidelines and procedures
- industry standards and codes of practice

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1154A: Conduct pre-installation audit for software installation

Competency Descriptor: This unit deals with the skills and knowledge required to identify the pre-requisites needed for installation of software and is useful to undertake prior to the purchase of software.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Assess compatibility of existing software	1.1 Details of software loaded on client's system are confirmed from actual system and from existing system documentation.
	1.2 Software pre-requisites needed for new software are identified.
	1.3 Implications of addition of new software are noted.
	1.4 Minimum software requirements are confirmed.
	1.5 Customer requirements are matched with technical specifications in accordance with enterprise guidelines and procedures.
	1.6 Any compatibility issues are confirmed and assessed against installation plan and cost constraints.
	1.7 Recommendations on variances, level and software consistency are documented for higher authority consideration.
2. Confirm interoperability of software with environment	2.1 Lack of conflict between software is confirmed.
	2.2 Defined degree of synergy between software is measured using the correct procedures.
	2.3 Functioning of interoperability is confirmed following standard procedures.
3. Assess system capacity to install ordered software	3.1 Details of current system memory, disk, available disk storage, and other specific hardware requirements are obtained from investigation of actual system and existing system documentation.
	3.2 Hardware pre-requisites needed for new software are confirmed.

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		3.3 Implications of addition of new software on hardware requirements are noted.
		3.4 Minimum hardware requirements are identified.
		3.5 Capacity issues are confirmed and assessed against installation plan and cost constraints.
		3.6 Recommendations on variances in capacity are documented for higher authority consideration in accordance with enterprise guidelines and procedures.
4.	Prepare and distribute audit report	4.1 Findings, recommendations and impact on project are documented in a manner that the target audience can comprehend.
		4.2 Audit/analysis report is presented and distributed according to enterprise and project procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to conducting pre-installation audit for software installation.

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun

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Operating system may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

Client may include:

- department within the enterprise
- entire enterprise
- external customer
- new customer
- existing customer

Software may include:

- packaged software
- in-house developed software
- out-sourced developed software
- applications
- utilities
- operating systems

Implications for addition of new software may include:

- interoperability
- compatibility
- redundancies
- effect on capacity of system

Customer requirements may include:

- upgrading of software
- increasing system capacity
- replacing software applications
- replacing operating system

Compatibility issues may include:

- effect on throughput of system
- integrability with other components
- performance in existing environment

Guidelines and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- policies governing communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

Occupational Health and Safety standards may include:

- enterprise requirements
- statutory regulations
- vendor requirements
- ergonomic requirements
- environmental factors

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to conduct pre-installation audit for software installation in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of the current system functionality, assessing compatibility of existing software and determining system's capacity to accommodate new software
- source and interpret technical documentation on system functionality, technical specifications and client requirements
- conduct assessment and evaluation of system software capacity, requirements and impact of installation
- demonstrate the ability to guide customers on what specific components are required prior to commencement of installation
- provide clear recommendations and assignment of responsibility for any missing components
- determine the impact and risk by either continuing or discontinuing the implementation
- provide reports in accordance with requirements
- perform all tasks to standard specifications and safety requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- client business domain
- assessment of compatibility of existing software
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the role of stakeholders and the degree of stakeholder involvement
- auditing
- the system's current functionality
- quality assurance practices
- Occupational Health and Safety requirements
- risk management
- preparation of audit report
- manufacturer's technical specifications
- project management
- enterprise guidelines and procedures
- pre-requisites for software installation

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- installation planning
- auditing and analysis of software requirements and implications
- industry standards and codes of practice
- system diagnostics and utilities
- compatibility issues
- assessment of interoperability of software with environment
- assessment of software consistency and variances

Skills
The ability to:

- solve problems
- read and interpret technical manuals
- collect, evaluate and analyse information
- present findings and recommendations
- identify software pre-requisites needed for new software
- participate in the development of strategic initiatives
- determine implications and minimum requirements
- match customer requirements with technical specifications
- confirm capacity issues
- assess capacity issues against installation plan and cost constraints
- communicate effectively
- document findings, recommendations and impact on project
- work in team
- contribute to solutions and goals of a non-routine or contingency nature
- write technical reports
- apply facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts
- use system diagnostics and utilities
- determine details of current system memory, disk, available disk storage, other specific hardware requirements
- apply project planning skills

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- operational system and the system specifications
- technical specifications of components to be installed
- documentation tools
- enterprise guidelines and procedures

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1164A: Conduct post implementation review

Competency Descriptor: This unit deals with the skills and knowledge required to plan and carry out a review of the system after the implementation has been completed and has been operational for some time.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Schedule review	1.1 Organisation standards and success criteria procedures are reviewed to identify the purpose of the review and when and how it should be undertaken.
	1.2 Purpose of review is converted into specific criteria such as outcomes, measures of outcomes and standards related to organisational purpose.
	1.3 Appropriate person is contacted to schedule timings and venue in accordance with enterprise guidelines and procedures.
	1.4 Work schedule based on standards is prepared and action items and staff involved are identified.
	1.5 Interface between vendor and organisation is provided where necessary regarding support/service commitment.
2. Carry out review	2.1 Purpose of the review, their involvement and what is expected from them is explained to the parties involved.
	2.2 Review is carried out using a variety of techniques to obtain data on the areas under review.
	2.3 Any exceptions to results are followed up in order to ensure accurate information is gathered and case notes are completed.
	2.4 Minute findings, recommendations and impact on system and other projects are administered in accordance with enterprise guidelines and procedures.
	2.5 Suggestions for resolution of problems are made and any actions resulting from audit report are summarised.

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3.	Document and publish results	3.1 Results and feedback are distributed to relevant parties in accordance with enterprise policies and procedures.
		3.2 Additional meetings/review resulting from current review are scheduled in accordance with enterprise guidelines and procedures.
		3.3 Recommendations and action items are finalised and are distributed to management so lessons learnt may be incorporated in future projects and the standards documentation.
		3.4 Any add-ons required are identified through gap analysis and potentials.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to conducting post implementation review.

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Operating system may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

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Post implementation review may include:

- a review of any system problems
- procedural issues
- stated system goals and objectives
- individual responsibility
- training needs and procedures

Client may include:

- department within the enterprise
- entire enterprise
- external customer
- new customer
- existing customer

Software may include:

- packaged software
- in-house developed software
- out-sourced developed software
- applications
- utilities
- operating systems

Guidelines and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- policies governing communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost
- quality procedures

Objectives in a review may include:

- learning from mistakes
- identifying user problems
- checking operations

Techniques employed in review may include:

- interview
- questionnaire
- observation
- testing

Findings of review may include:

- slippage to schedule
- no impact
- patches/upgrades need to be installed
- upgrade to memory/hard disk, memory board or other technical component

Implementation project may include:

- hardware upgrade
- software upgrade
- hardware implementation
- software implementation

Occupational Health and Safety standards may include:

- enterprise requirements
- statutory regulations
- vendor requirements
- ergonomic requirements
- environmental factors

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to conduct post implementation review in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of strategies to plan and conduct review of implementation activities and the established success criteria and performance standards expected
- determine purpose of review, select appropriate criteria and collaboratively prepare schedule of work activities
- establish resource and staff requirements and explain roles and functions of all parties involved in the process
- demonstrate the ability to comprehensively plan and carry out a review of the system after the implementation has been completed and has been operational for some time
- data is collected, analysed and discrepancies are investigated and recommendations and impact assessments are documented and passed on to the relevant parties
- feedback is obtained and results are published and distributed in accordance with guidelines and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current functionality of the system
- enterprise standards and success criteria
- role of stakeholders and the degree of stakeholder involvement
- objectives of review
- measures of outcome
- system testing and diagnostic procedures
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the client business domain
- implementation process and relevant issues
- planning review
- review techniques
- conducting review
- documenting/publishing results from review
- project planning

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- resolutions of problems from implementation process
- manufacturer's specifications
- enterprise guidelines and procedures
- industry standards
- risk management
- auditing
- resources required for review process

Skills
The ability to:

- solve problems
- establish purpose of review
- review success criteria
- plan review
- schedule work activities
- work with others
- determine measure of outcomes and specific criteria
- communicate effectively
- read and interpret technical documentation
- conduct review using a variety of techniques
- participate in the development of strategic initiatives
- collect, analyse and evaluate information
- make recommendations based on analysis of data
- schedule and manage meetings
- obtain feedback from stakeholders
- prepare technical reports/documentation
- apply project planning skills

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- operational system and/or its specifications
- technical specifications of components installed
- documentation tools
- success criteria
- enterprise guidelines and procedures
- industry standards and codes of practice

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1244A: Build an intranet

Competency Descriptor: This unit deals with the skills and knowledge required to design and implement an intranet to provide services to client users.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan and design an intranet	1.1 Client user requirements that can be satisfied by the use of an intranet are evaluated.
	1.2 Intranet specification is produced to meet client user requirements and budget constraints in accordance with enterprise guidelines and procedures.
	1.3 The intranet hardware, software, network and security requirements are designed in accordance with enterprise and industry standards and procedures.
	1.4 Plan is developed for the sourcing and implementation of intranet technologies in accordance with enterprise policies and procedures.
2. Install and configure intranet infrastructure	2.1 Server hardware and software are installed and configured following the correct procedures.
	2.2 Networking components are installed where necessary following the correct procedures.
	2.3 Workstation and client hardware and software are installed and are configured to be able to access services.
	2.4 Necessary hardware and software required to connect the intranet to the Internet are installed if required.
	2.5 Domain names and IP addresses are configured to facilitate intranet and Internet access.
3. Install and configure intranet services	3.1 Software is installed and is configured to provide editing.
	3.2 Software is set up to provide services as required including news groups.
	3.3 Software is installed and is configured that provides intranet links with existing databases.

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		3.4 Security and access levels are configured to safeguard data, making use of appropriate tools and techniques such as fire walls.
4.	Manage and support the intranet	4.1 Policies and procedures are developed that are to be implemented and used in managing and updating the intranet.
		4.2 Management tools to assist in intranet administration are obtained, installed and used.
		4.3 Traffic and hits are monitored over the intranet in accordance with industry best practices.
		4.4 Logs and other reports required to manage and support the intranet are created in accordance with enterprise guidelines and procedures.
		4.5 Intranet performance is fine tuned and is optimised.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to building an intranet.

Network may include but not limited to:

- large Local Area Network
- small Local Area Network
- Wireless Local Area Network
- small Wide Area Network

Installation of intranet may include:

- installation on existing network
- installation on a new network

Servers may include:

- application/web servers: BEA Weblogic Servers, IBM VisualAge and WebSphere, Microsoft Host Integration Server, NetDynamics, Netscape Application Server
- email servers
- file & print servers
- FTP servers
- proxy servers

Intranet requirements may include:

- simple sharing of Hypertext Mark-up Language documents
- file sharing
- collaborative computing software
- comprehensive e-commerce sites with Internet and other external connections

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Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron
- routers & gateways: 3Com, CISCO, D-Link, Intel
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun

Operating system may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

Occupational Health and Safety requirements may include:

- company requirements
- statutory regulations
- vendor requirements
- ergonomic requirements
- environmental factors

Software may include packaged software comprising full suites or individual components including:

- Intranet connections
- ColdFusion
- Xpedio
- Samba
- ERoom
- Collabra Share

Documentation and reporting guidelines may include:

- maintaining standards of definition
- standards of format
- user access to information
- guidelines on writing clear and information is written in such a way that it will be readily understood by the target audience
- specifications for accessing and presentation of reports

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Guidelines and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- policies governing communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to build an intranet in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of intranet technologies and the installation, configuration and usage of the technology (hardware and software)
- determine client user requirements and produce specifications for intranet that meet user requirements and budgetary constraints
- demonstrate the ability to design and implement an intranet to specifications
- develop plans for sourcing and implementation of intranet technologies in accordance with specifications
- install and configure required components and enable access to Internet and all services
- perform all installation and configuration tasks using standard operating procedures
- develop policies and procedures for managing and updating the intranet and provide support and monitoring
- compliance with Occupational Health and Safety, enterprise and industry standards, procedures and requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- designing an intranet
- implementing an intranet
- configuring hardware and software components of intranet
- connecting to and accessing the Internet
- servers
- network operating systems
- network installation and operations
- network management
- network security
- installing and configuring intranet infrastructure
- installing and configuring workstation and client user software and hardware
- intranet services
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain, business function and organisation
- communications technologies
- vendors and their products and services
- manufacture's specifications
- intranet technologies with broad knowledge of general features and capabilities
- Occupational Health and Safety requirements
- industry standards and codes of practice
- enterprise guidelines and procedures
- project planning
- risk management

Skills
The ability to:

- communicate effectively
- deal with clients and team members
- acquire components
- install and configure intranet infrastructure
- plan and design intranet to specifications
- read and interpret technical documentation
- determine client requirements
- analyse, evaluate and present information
- solve problems
- work safely
- connect intranet to Internet
- manage and support the intranet
- use network management and security tools and techniques
- apply project planning skills
- manage risk
- produce procedures and reports
- perform installations, configuration and monitoring tasks using standard procedures
- work in team

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- server hardware and software
- Internet connections
- enterprise guidelines and procedures
- industry standards and codes of practice

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1774A: Manage network security

Competency Descriptor: This unit deals with the skills and knowledge required to implement and manage security functions on the network.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify threats to network	1.1	Risk analysis is carried out and threats to network are evaluated.
		1.2	Cost effective measures are identified to recover from or prevent threats.
		1.3	Security policies and disaster recovery plan are developed in accordance with enterprise and industry guidelines and procedures.
		1.4	Plan is presented to management for approval and authorisation in accordance with enterprise guidelines and procedures.
2.	Review audit needs	2.1	Security requirements that have been evaluated to date are reviewed and their appropriateness is discussed with auditors.
		2.2	Designs and client safety requirements are discussed with auditors and key stakeholders.
		2.3	Audit trails are agreed with auditors and the incorporation of any user needs is ensured in accordance with enterprise policies and procedures.
3.	Identify appropriate controls	3.1	Control methods that are being used on the network are reviewed.
		3.2	Module and network-wide controls are reviewed against client requirements and safety requirements.
		3.3	Significant error handling is catered for according to safety requirements.
		3.4	Controls for security and risk issues are documented and are presented to senior management and auditors for approval.

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4.	Incorporate controls into the network	4.1	Controls to be added to the network and controls that are environmental or network based are identified.
		4.2	User access security provisions are documented by user classification to be applied at program, record or field level in accordance with enterprise guidelines and procedures.
		4.3	Inclusion of procedures for controlling the security provisions is ensured according to client requirements.
		4.4	Senior management and auditor approval is obtained for the design of the controls.
5.	Implement additional security facilities	5.1	External or intra network access is reviewed and appropriate devices such as firewalls are recommended.
		5.2	Market for firewalls is evaluated and recommendations are made to senior management.
		5.3	Firewall is installed and configured in accordance with manufacturer's recommendation and security standards.
		5.4	Need is reviewed and recommendations are made for additional equipment.
		5.5	Approved equipment is installed and is configured to provide required levels of security.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to managing network security.

Network may include but not restricted to:

- large and small Local Area Networks
- national and international Wide Area Networks
- the Internet
- the use of the PSTN for dial up modems only
- private lines
- data and voice

Issues relevant to the security environment may include:

- relevant privacy laws
- organizational security policies
- ethical issues
- customer requirements/expectations
- expertise and knowledge that are relevant

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Software may include:

- security
- audit
- virus checking
- encryption modules

Commercial and business requirements may include:

- back-up
- storage and recovery of data
- access to internal network
- passwords/logons
- firewalls
- hacking
- confidentiality
- integrity
- availability

Operating systems may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC
- VMS
- Mac OSX
- Linux
- NetWare

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun

Security threats may include:

- eavesdropping
- manipulation and impersonation
- penetration and by-pass
- virus

Security policies may cover:

- theft
- viruses
- standards (including archival, back-up, network)
- privacy
- audits
- alerts
- security objectives of the organisation

Security requirements may be based on:

- business needs
- technical specifications
- information security management standards
- information technology - lower layers security standards

Module and network-wide controls may include:

- date checks
- version checks
- reconciliation procedures

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Operating procedures may include:

- handling of security internal breaches and customer requirements for security
- frequency and nature of archives
- back-ups
- alerts
- audits
- review and test

Physical nature of security may cover issues including:

- the network and its location
- wide area networks
- access by people other than employees
- security of the building hosting the network

Standards may include:

- enterprise standards
- Occupational Health and Safety standards
- industry standards
- statutory regulations

Security strategy includes:

- privacy
- authentication
- authorization
- integrity

Enterprise guidelines and procedures may cover:

- communication quality assurance
- documentation and reporting
- privacy and confidentiality
- customer service

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to manage network security in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of security threats to the network, threat prevention strategies and implementation of network security procedures and facilities
- demonstrate knowledge of security features available in the operating environment
- analyse risk to system and develop security policies and disaster recovery plan
- collaboratively review and determine design, client and user security requirements and needs
- demonstrate the ability to implement and manage security functions on the network with the appropriate approval
- conduct installation and configuration activities using standard operating procedures
- identify and provide appropriate controls and security facilities
- perform all documentation and reporting in accordance with guidelines and procedures
- perform all tasks in accordance with Occupational Health and Safety and security requirements
- comply with enterprise and industry standards, policies and procedures

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain, business function and organization
- networking technologies with broad knowledge of general features and capabilities
- risk analysis
- security technology
- network security policies
- disaster recovery planning
- security threats
- threat prevention measures
- audit trails
- network security facilities
- control methods
- error handling methodologies
- project planning
- designing network security
- enterprise guidelines and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements
- legislations governing privacy
- statutory regulations
- manufacturer's specifications for security
- installation and configuration procedures

Skill
The ability to:

- analyse risks to network
- identify security threats
- identify cost effective threats prevention measures
- develop security policies and disaster recovery plan
- solve problems
- determine system and use security needs
- communicate effectively
- read and interpret technical documentation
- analyse, evaluate and present information
- apply best practice in network security methodologies and technologies
- install and configure software and hardware components
- design and implement controls
- handle errors
- implement security facilities
- produce relevant documentation
- apply project planning skills
- manage user access

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- network and security requirements
- appropriate equipment and software with security restrictions
- enterprise guidelines and procedures
- industry standards and codes of practice

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1764A: Troubleshoot and resolve network problems

Competency Descriptor: This unit deals with skills and knowledge required to undertake various support activities associated with a network to maintain service and resolve problems.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Determine level of support required	1.1 Support requirements are reviewed with users and criticality of the network and level of support needed is identified.
	1.2 Support plan is produced demonstrating how user requirements are to be satisfied and identifying resources needed in accordance with enterprise policies and procedures.
	1.3 Service Level Agreements and other support policies are developed in accordance with enterprise policies and procedures.
	1.4 Support plan is presented to management for approval and authorisation.
2. Identify, obtain and use tools for support	2.1 Tools that are required to support the network are identified using Service Levels Agreements and policies as a guide.
	2.2 Vendor's products are evaluated and appropriate hardware and software tools are selected.
	2.3 Support tools are installed and operation tested in accordance with manufacturer's specifications.
	2.4 Tools are used to evaluate network performance and troubleshoot the network.
3. Implement regular network monitoring	3.1 Appropriate logs required to monitor network activity are set-up in accordance with enterprise guidelines and procedures.
	3.2 Critical activity levels are identified and alerts and other warning systems is set-up following the correct procedures.
	3.3 Documents and logs are regularly reviewed to tune network following the correct procedures.

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		3.4	Recommendations to management are made for additional network resources to improve performance or proactively avoid problems.
4.	Troubleshoot network problems	4.1	Help desk and other support services are communicated with to quickly identify a network problem.
		4.2	Problems that occur in networks are troubleshooted in accordance with industry practices.
		4.3	Various tools are used to identify and solve network problems using the correct procedures.
		4.4	Clients are advised of progress, solutions and/or work-around in timely and empathic manner.
		4.5	Support documentation is completed in accordance with enterprise standards.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to troubleshooting and resolving network problems.

Network may include but not limited to:

- large Local Area Networks
- small Local Area Networks
- national Wide Area Networks
- the Internet

Network operating system may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

Support requirements may include:

- hardware
- software
- personnel
- training

Details of support plan may include:

- software tools
- hardware tools
- duration of support
- level of support
- monitoring activities
- roles and responsibilities of each parties
- one to one training
- group training
- remote support from help desk

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Support tools may include:

- cable checkers
- tone generators
- multimeters
- network analyzers
- network monitors
- troubleshooting components
- monitoring components

Occupational Health and Safety requirements may include:

- company requirements
- statutory regulations
- vendor requirements
- ergonomic requirements
- environmental requirements

Network problems may include:

- data loss
- noise
- slow throughput
- collisions
- ghosts
- runts

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to troubleshoot and resolve network problems in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of the troubleshooting and monitoring facilities available in the operating environment
- collaboratively develop support plan, support policies and Service Level Agreements
- evaluate and select appropriate support tools and equipment in accordance with network support requirements
- install and operate tools to evaluate network performance and troubleshoot the network
- demonstrate the ability to undertake network support activities and monitor the network to maintain network activities
- identify and set-up alert and warning system and implement network monitoring procedures
- identify and solve network problems and present recommendations to appropriate parties on resources and preventive measures
- establish and review logs and appropriate documentations, recommendations and support procedures
- communicate effectively with all parties in accordance with enterprise guidelines and procedures
- undertake all tasks in accordance with Occupational Health and Safety, industry and enterprise requirements

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain, business function and organisation
- degree of stakeholder involvement
- networking technologies with broad knowledge of general features and capabilities
- network management tools with broad knowledge of general features and capabilities
- Occupational Health and Safety requirements
- enterprise escalation procedures
- enterprise guidelines and procedures
- industry standards
- manufacturer's specifications
- Service Level Agreements
- support planning
- network support policies
- network problems and relevant solutions
- installation of support tools
- operating support tools
- network warning and alert systems
- monitoring network performance
- network troubleshooting procedures
- help desk and support services
- support documents and logs
- stress management
- project planning

Skill
The ability to:

- identify and review network support requirements
- develop support policies and Service Level Agreements
- identify network support tools and resources
- evaluate and select vendor's hardware and software tools
- install and operate tools
- communicate effectively
- read and interpret technical documentation
- evaluate and monitor network performance
- troubleshoot network problems
- solve network problems
- set up appropriate logs, alert and alarms
- make recommendations based on evaluations
- evaluate, analyse and present information
- produce required reports and documentation
- apply effective questioning and active listening skills
- negotiate skilfully
- mange stress
- apply project planning skills

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- network and relevant network management tools and equipment
- enterprise guidelines and procedures
- industry standards and codes and practice

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manage process • Select the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1234A: Install and manage complex networks

Competency Descriptor: This unit deals with the skills and knowledge required to install and manage a network consisting of multiple components and connectivity options.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Implement multiple servers	1.1	Client user requirements are reviewed and the benefits to be obtained by using multiple servers are evaluated.
		1.2	Network structure is developed that makes use of multiple servers acting individually or in concert.
		1.3	Impact of the changes being implemented is conveyed to users in accordance with enterprise policies and procedures.
		1.4	Documentation is completed in line with enterprise requirements.
		1.5	Multiple servers are implemented and configured to provide appropriate services in accordance with specifications.
2.	Install and configure devices to extend network reach	2.1	Network communication devices are installed and configured to provide network services to meet client user requirements.
		2.2	Cabling and associated components are checked and are installed in accordance with industry standards for type of cable and bandwidth.
		2.3	Documentation is completed in line with enterprise requirements.
		2.4	Remote access services are installed and configured to meet client user requirements.

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3.	Manage differing levels of security	3.1	Levels of user access are determined according to their work requirements and organisational approval.
		3.2	Need for firewalls is planned and implemented in accordance with security requirements.
		3.3	Viability and reliability of the network security is monitored in accordance with requirements.
		3.4	Internal and external access is monitored in accordance with security requirements.
		3.5	Documentation on the security policy for technicians and users is developed in accordance with enterprise policies and procedures.
4.	Connect to a host computer	4.1	Client user requirements to be satisfied by host connection are identified.
		4.2	Appropriate hardware, network components and software in host system are evaluated.
		4.3	Appropriate hardware, network components and software in host system are selected and installed in accordance with manufacturers' procedures.
		4.4	Host gateway, protocol converter or other appropriate hardware and software are installed and configured.
		4.5	Appropriate client software to provide host connectivity is installed and configured in accordance with manufacturers' procedures.
		4.6	Documentation is completed in line with organisational requirements.
		4.7	Configuration of host connectivity options are tested and configured using the correct procedures.

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5.	Integrate and manage network resources with network utilities	5.1 Appropriate network management tools are identified that will assist in the administration of the complex network.
		5.2 Network management tools are selected and installed in accordance with industry and enterprise standards.
		5.3 Tools are tested to ensure they are fully operational.
		5.4 Ability of users to use the changes that have occurred is confirmed.
		5.5 Procedures are developed to ensure regular network reporting and administration in accordance with organisational policies and procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing and managing complex networks.

Network may include but not limited to:

- large Local Area Networks
- small Local Area Networks
- national Wide Area Networks
- the Internet

Clients requirements may include:

- wider coverage of service
- increase capacity
- faster throughput
- greater user access

Network operating system may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux

Servers may include:

- application/web servers: BEA Web logic Servers, IBM Visual Age and Web Sphere, Microsoft Host Integration Server, Net Dynamics, Netscape application Server
- email servers
- file & print servers
- FTP servers
- proxy servers

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Impact of changes may include:

- new procedures
- new technologies
- new services
- increase workload due to wider access

Network services may include:

- file sharing
- voice and data communication
- data transfer
- Internet access

Security requirements may include:

- threat detection
- anti-virus protection
- protection against hacking and penetration of security
- establishing level of user access
- protection against eavesdropping
- unauthorized access
- ensuring privacy

Software may include:

- vendor products
- in-house development
- outsource development
- customized software

Remote access services may include:

- dialup service
- Digital Subscriber Line (DSL) service
- Virtual Private Network/Point-to-Point Tunneling Protocol (VPN/PPTP)

Network reporting and administrative procedures may include:

- logs for maintenance
- fault reporting mechanisms
- help files
- client support procedures
- error handling procedures
- testing and monitoring procedures

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Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems
- bridges, 3Com, Compaq, CISCO, IBM
- modems, analog, cable, ISDN, DSL
- servers, Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards, Adaptec, ARTIC, Compex, SMC
- switches, 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters, 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron
- routers & gateways, 3Com, CISCO, D-Link, Intel
- file & print servers, AcerAltos, Aerocomm, Alpha Server, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Enterprise policies and procedures may include:

- customer service policies
- policies governing access to and distribution of information
- privacy and confidentiality policies
- procedures for work activities
- financial control processes

Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory regulations
- industry requirements
- ergonomic requirements

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install and manage complex networks in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of the facilities available in the operating environment, network installation and management and
- evaluate and assess benefits, impact of changes and users' ability to deal with the changes to the system
- determine client requirements and provide timely client service
- installation and configuration of network devices in accordance with specifications
- develop and implement plans, procedures/policies and reporting/documentation systems
- integrate and manage network resources with network utilities and monitor network security
- demonstrate the ability to manage a complex network that consists of multiple components and connectivity options
- perform all tasks in accordance with Occupational Health and Safety, industry and enterprise standards and guidelines

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain, business function and organisation
- client user requirements
- network structure
- network communication devices
- server implementation
- network security
- network administration
- network management tools
- host system
- networking technologies with broad knowledge of general features and capabilities
- supporting documentation systems
- network reporting and administration procedures
- enterprise policies and procedures
- Open System Interconnection (OSI) Model
- manufacturers' specifications
- installation and configuration procedures
- Occupational Health and Safety requirements
- Industry standards and codes of practice

Skills
The ability to:

- determine client requirements
- read and interpret technical documentation
- communicate effectively
- solve problems
- establish procedures and guidelines
- develop network structure
- analyse, evaluate and present information
- produce reports and documentations
- apply installation and configuration procedures
- integrate and manage network resources
- manage and monitor network security
- work safely
- provide instructions
- apply project planning skills
- apply questioning and active listening skills

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- network design documentation
- equipment specifications
- network components, tools and equipment
- enterprise policies and procedures
- industry standards and codes of practice

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITIPRG2084A: Develop and present a feasibility report

Competency Descriptor: This unit deals with the skills and knowledge required to deliver a document outlining feasible scenarios available to the organisation.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Confirm that proposed solution is the best reasonable fit	1.1 Analysis of client requirements has occurred and is confirmed.
	1.2 Solutions most useful to client needs are considered by each key client user.
	1.3 Proposed solutions are accepted by key decision makers.
	1.4 Analysis and recommendations are reviewed with management according to company requirements.
2. Develop high level alternative scenarios	2.1 Future business process requirements are compared and analysed with current requirements.
	2.2 Alternative work scenarios are performed for each work to analyse the characteristics of each system.
	2.3 Alternatives are fully examined against budget constraints and are dismissed after careful consideration.
	2.4 Model of preferred scenario is prepared in accordance with enterprise guidelines and procedures.
3. Prepare and publish feasibility report	3.1 Reasons for change are established and scope and function of proposed system are detailed.
	3.2 Alternative scenarios are described, assumptions are articulated and one or two preferences are presented in accordance with enterprise guidelines and procedures.
	3.3 Project constraints and impact statement are described following the correct procedures.
	3.4 Cost benefit analysis is prepared in accordance with organisation standards and project requirements.
	3.5 Plan is produced that describes project schedule, timeframe and cost constraints.

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3.6 Summary is presented to higher authorities and/or client for project approval in accordance with enterprise guidelines and procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to developing and presenting a feasibility report.

Client may include:

- department within an organization
- business requiring an e-commerce solution
- third party

The relationship and ease of access will vary depending on the client.

Issues for documentation and reporting may include:

- audit trails
- naming standards
- version control
- project management templates
- report writing styles

User roles within the project may vary depending on:

- the user's role within the organization
- expertise of the user
- level of authority

Sources of information may involve:

- change management plans
- project management plans
- current systems design plans
- business strategic plans

Constraints may depend on:

- the size of the organization
- size of project and/or development team
- project size and length (time and budget constraints)

Workplace environment may involve:

- a business involved in a total organizational change
- systems only change
- a business improvement process
- an e-commerce solution involving the total organization or part of the organization

Business solutions may include:

- green field sites
- the integration of new solutions with existing Information Technology infrastructures
- e-commerce solutions

Project may vary and may be:

- large
- small
- discrete
- integrated

Administration system may depend on:

- the size of the project
- complexity of project
- amount of information being processed by the project member/s

Problem solution techniques may involve:

- soft system methodologies
- Joint Application Development (JAD)

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Characteristics of alternative work scenarios include:

- principal inputs/outputs
- expected improvements/impacts
- revenue/cost benefits
- risks
- negatives
- downsides
- physical requirements

Analysis techniques may include:

- gap analysis
- urgency and impact
- statistical
- current requirements gathering methodologies

Consulting techniques may include:

- interviews
- surveys
- chat rooms
- focus groups
- questionnaire
- surveys

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to develop and present a feasibility report in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of system development methodologies, information development methodologies and project planning
- develop sufficient knowledge of the client problem and demonstrate the ability to present solutions
- perform analysis and evaluation of the business process and propose viable solutions
- develop alternative scenarios, analyse scenarios in depth and model preferred scenario
- demonstrate the ability to clearly develop coherent and concise information which provides realistic solutions
- competence must include the coherence of all techniques across the elicitation, modeling, analysis and validation stages
- establish basis for change, conduct detail analysis and provide details on impact of change
- produce project plan for approval and review proposals with decision makers
- apply organisational quality procedures and processes

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- the client business domain
- current industry systems development methodologies, for example when developing alternative high level scenarios
- current industry information gathering methodologies
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the role of stakeholders and the degree of stakeholder involvement
- the system's current functionality
- comparing and analyzing future business process requirements with current requirements
- quality assurance practices
- project planning
- client business requirements
- solutions to business requirement and alternatives
- analysis of scenarios
- modeling preferred scenarios
- impact assessment
- cost benefit analysis
- developing feasibility reports
- research methodologies
- group facilitation processes
- communication techniques
- enterprise guidelines and procedures
- industry standards
- Occupational Health and Safety requirements
- project approval processes

Skills
The ability to:

- apply project planning skills
- manage risk
- identify, analyse and evaluate business process requirements
- communicate effectively
- facilitate group discussions and gain consensus on issues
- prepare and/or publish feasibility report
- compare and analyse future business process requirements with current requirements
- perform alternative work scenarios for each work
- apply financial modeling skills for identifying, analyzing and evaluating a range of different solutions
- analyse, evaluate and present information
- describe alternative scenarios, articulate assumptions and present preferences
- present summary to higher authorities and/or client for project approval
- produce reports and relevant documentation

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(4) Resource Implications

To demonstrate this unit of competence the candidate will require access to:

- workplace (actual enterprise or simulated)
- documents detailing:

- client's requirements
- a report writing template
- a client expectation brief
- information on a range of IT business solutions
- future organizational business processes
- a budget for the scenarios
- outcome of the business analysis process

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2104A: Produce network/communication design

Competency Descriptor: This unit deals with the skills and knowledge required to specify the design of the required network architecture.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Design network	1.1	Client user requirements are reviewed and network requirements are identified in accordance with enterprise policies and procedures.
		1.2	Physical network diagram is developed as a preface to, or adjunct to architecture blueprint in accordance with industry best practices.
		1.3	The siting and types of terminals, processors, required protocols and network architecture are established, based on technical specifications and user requirements.
2.	Evaluate network traffic	2.1	Line traffic and the impact on input/output devices and processors are predicted from current and future demand requirements.
		2.2	Design is benchmarked using expected volumes of traffic as a basis.
		2.3	The likely performance profile (best/worst) is identified and the effect on other systems is reviewed.
3.	Finalise network design	3.1	Benchmarks and requirements are reviewed and final design proposed in accordance with enterprise policies and procedures.
		3.2	Support and training requirements are determined and added to requirements.
		3.3	Latest technical specifications and pricing are obtained by contacting possible vendors in accordance with enterprise policies and procedures.
		3.4	Network design is documented and presented to senior managers, client users and sponsor for approval.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to producing network/communication design.

Proposed solution may include:

- building complete system
- acquiring packages with possible modification
- procurement of additional hardware and network equipment as well as software
- e-commerce solutions
- new business models

Client may include:

- department within an organization
- business requiring an e-commerce solution
- third party

- The relationship and ease of access will vary depending on the client.

Workplace environment may involve:

- a business involved in a total organizational change
- systems only change
- a business improvement process
- an e-commerce solution involving the total organization or part of the organization

Issues for documentation and reporting may include:

- audit trails
- naming standards
- version control
- project management templates
- report writing styles

Project size may vary and may be:

- large
- small
- discrete
- integrated

Architecture blueprint may include a diagram of varying size and complexity indicating:

- the current system infrastructure
- software versions
- hardware model numbers
- cabling information

Existing architecture may include:

- systems based around mainframes
- networks of mid-range machines and/or desktop personal computers
- variety of vendor products
- range of network protocols

Networks may include:

- Local Area Networks
- Intranets
- Virtual Private Networks (VPN)
- Wide Area Networks
- based on the Internet

Business solutions may include:

- green field sites
- the integration of new solutions with existing Information Technology infrastructures
- e-commerce solutions

Administration system may depend on:

- the size of the project
- complexity of project
- amount of information being processed by the project member/s

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Sources of information may involve:

- change management plans
- project management plans
- current systems design plans
- business strategic plans

Consulting techniques may include:

- interviews
- surveys
- chat rooms
- focus groups
- questionnaire
- surveys

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems
- bridges, 3Com, Compaq, CISCO, IBM
- modems, analog, cable, ISDN, DSL
- servers, Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards, Adaptec, ARTIC, Compex, SMC
- switches, 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters, 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron
- routers & gateways, 3Com, CISCO, D-Link, Intel
- file & print servers, AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory regulations
- industry requirements
- ergonomic requirements

Constraints may depend on:

- the size of the organization
- size of project and/or development team
- project size and length (time and budget constraints)

Analysis techniques may include:

- gap analysis
- urgency and impact
- statistical
- current requirements gathering methodologies

Network operating system may include:

- pSOS+ (modular real-time operating system)
- UNIX
- real-time UNIX
- VRTX
- LYNX-OS
- SOLARIS
- LINUX
- DOS
- Windows
- Windows NT
- Windows CE

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to produce network/communication design in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate sufficient knowledge of communication hardware, protocols and legacy systems
- determine network requirements through analysis and review of client requirements
- produce detail network design based on technical specifications and user requirements
- evaluate network traffic based on analysis of current and future business requirements
- demonstrate the ability to design viable network solutions and to assess network performance
- determine costing, technical specifications, training and support requirements for proposed design
- review benchmarks and other quality processes and develop final design for approval in accordance with requirements
- compliance with Occupational Health and Safety requirements, enterprise and industry standards and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted network protocols
- designing network
- current industry accepted network hardware and software products with broad knowledge of general features and capabilities
- evaluating network traffic
- current industry security products, devices and procedures with broad knowledge of general features and capabilities
- finalising network design
- current industry network development and design methodologies
- network operating systems
- client business domain
- remote user issues
- interpretation of network architecture blueprint
- network architecture

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- technical specifications and user requirements
- current and future demand requirements
- developing physical network diagram
- assessment of network performance
- design benchmarks and quality processes
- project planning
- vendors and vendor offerings/prices
- network support and training requirements
- industry standards
- enterprise policies and procedures
- Occupational Health and Safety requirements
- assessment of impact of design on other systems

Skills
The ability to:

- apply project planning skills
- review client user requirements and network requirements
- document network design and present it for approval
- specify, analyse and evaluate broad features of current security issues and best practice in security devices, products and procedures
- obtain latest technical specifications and pricing by contacting possible vendors
- specify the likely performance profile
- review effect of solution on other systems
- specify, analyse and evaluate a range of different solutions
- communicate effectively
- solve problems
- facilitate group discussion to gain consensus on issues

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- documents detailing:
  - client's requirements
  - technical specifications
  - expected traffic volume
  - vendors and vendors offerings/pricing
  - information on a range of IT business solutions
  - future organizational business processes
  - a budget for the scenarios
  - outcome of the business analysis process

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2094A: Develop system infrastructure design plan

Competency Descriptor: This unit deals with the skills and knowledge required to specify the hardware, software and infrastructure required to support the system.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Specify architecture requirements	1.1	The critical principles, functions and framework for the system to operate across the enterprise or business units are identified taking into consideration the project deliverables, acceptance criteria and current Information Technology blueprint.
		1.2	The functions are organised into layers or wrappings and components to meet business systems requirements.
		1.3	The processing environment, the hardware, network and system software required to support the operational environments are identified.
		1.4	Systems topology model, templates and standards are refined to guide development.
		1.5	The project guidelines, standards, models, acceptance criteria and general framework are utilised to develop the architecture requirements.
2.	Specify hardware and software	2.1	Various products and vendors are evaluated against architecture requirements to determine the best Information Technology solution.
		2.2	Current and future capacity requirements are estimated and evaluated against client's future requirements.
		2.3	Requirements for upgrade or change are identified through analysis of software versions and interoperability status of existing systems and applications.
3.	Conduct walk through and compare/contrast expected performance criteria against vendor proposed offerings	3.1	Requirements model is compared against technical specifications and acceptance criteria.
		3.2	Requirements model is benchmarked against current industry standards and/or Information Technology blueprint for performance, interoperability and expected future organisational needs.

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3.3 Recommendations for improvement are documented and referred to appropriate technical specialists in accordance with enterprise policies and procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to developing system infrastructure design plan.

Client may include:

- department within an organization
- business requiring an e-commerce solution
- third party

The relationship and ease of access will vary depending on the client.

Business solutions may include:

- green field sites
- the integration of new solutions with existing Information Technology infrastructures
- e-commerce solutions

Workplace environment may involve:

- a business involved in a total organizational change
- systems only change
- a business improvement process
- an e-commerce solution involving the total organization or part of the organization

User roles within the project may vary depending on:

- the user's role within the organization
- expertise of the user
- level of authority

Issues for documentation and reporting may include:

- audit trails
- naming standards
- version control
- project management templates
- report writing styles

Constraints may depend on:

- the size of the organization
- size of project and/or development team
- project size and length (time and budget constraints)

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- policies on communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

Existing architecture may include:

- systems based around mainframes
- networks of mid-range machines and/or desktop personal computers
- vendor products
- network protocols

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Networks may include:

- Local Area Networks
- Intranets
- Virtual Private Networks (VPN)
- Wide Area Networks
- based on the Internet

Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory regulations
- industry requirements
- ergonomic requirements

Designated elements of scenarios liable to change may include:

- hardware and software components
- designated solution
- business processes
- e-commerce model

Statutory requirements and legislations may include but not limited to:

- privacy legislation
- commercial requirements
- safety requirements

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to developing system infrastructure design plan in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate sufficient knowledge of communications technology, hardware, software and data modelling
- determine architecture requirements through project deliverables, acceptance criteria and current Information Technology blueprint
- organise components into layers and identify the components required to support operational environment
- evaluate products, evaluate capacity and identify requirements for upgrade
- demonstrate the ability to translate business processes into technical processes
- demonstrate the ability to plan and develop a model for a physical system from the requirements
- benchmark model against established quality framework and document recommendations
- ensure that all issues relating to relevant general business legislation and specific privacy legislation are considered
- demonstrate understanding how legislation impacts on his/her role together with any business regulations and be able to interpret this in design and development decisions
- ensure that all issues relating to possible business solutions were considered and appropriate choices made given the acceptance criteria and technical specifications
- compliance industry and enterprise standards, guidelines, policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the client business domain particularly the business function and organisation
- architecture requirements
- cabling and telecommunications technologies
- vendor product directions and technology directions
- networking technologies with broad knowledge of general features and capabilities
- Occupational Health and Safety requirements
- systems architectural design principles and methodologies
- modelling techniques and methodologies
- project planning
- acceptance criteria
- interpretation of Information Technology blueprint
- network processing and operational environment
- system topology model
- industry standards
- enterprise standards, guidelines, policies and procedures
- statutory legislations and requirements
- evaluation of current and future capacity
- walk through process and evaluation of performance criteria against vendor proposed offerings

Skills
The ability to:

- solve problem
- perform analysis, diagnosis and evaluation
- specify the critical principles, functions and framework for the system to operate across the enterprise or business units
- communicate effectively
- facilitate group discussion and gain consensus on issues
- estimate current and future capacity requirements
- propose recommendations for improvement and refer them to appropriate technical specialists
- produce relevant documentations
- apply questioning and active listening skills
- interpret project deliverables, acceptance criteria and current Information Technology blueprint
- assess technological capabilities
- conduct research
- evaluate broad features of a particular business domain and best practice in system development determine the best Information Technology solution
- apply quality processes
- apply project planning skills
- produce technical reports

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- documents detailing:
  - the client's requirements
  - the project deliverables
  - the acceptance criteria
  - current Information Technology blueprint
  - information on a range of Information Technology business solutions and vendor offerings
  - future organisational business process requirements
  - technical specifications
  - outcomes of business analysis process

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1544A: Determine maintenance coverage

Competency Descriptor: This unit deals with the skills and knowledge required to identify maintenance strategies and supporting processes to maintain continuity of Information Technical operations and business functions.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify and analyse business maintenance needs	1.1	Risks to business continuity of system malfunction are identified to quantify possible loss.
		1.2	Core business functions are identified and service requirements determined.
		1.3	Maintenance philosophy is developed to meet business needs and is supplied to external client in accordance with enterprise policies and procedures.
2.	Identify and analyse Information Technology components/software to be maintained	2.1	Systems architecture and configuration documentation is reviewed for currency.
		2.2	Equipment and/or software audit is conducted if appropriate information is not available.
		2.3	The warranty status of any components and/or software is determined and documented according to project or company requirements.
		2.4	Critical Information Technology components and/or software are identified and recommendations on possible service arrangements are documented.
3.	Develop service level agreements	3.1	The views and requirements of client users are determined to identify maintenance requirements.
		3.2	Service Level Agreements are prepared to match user and business requirements in accordance with enterprise policies and procedures.
4.	Formulate maintenance strategy	4.1	Maintenance options are examined against cost constraints, risks to business continuity and Service Level Agreements.
		4.2	A specific maintenance strategy is identified based on cost, business and Service Level Agreements requirements.

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		4.3	A preventive maintenance schedule is determined on cost, business and Service Level Agreements requirements.
		4.4	Maintenance strategy is agreed with client users and changes are made to Service Level Agreements where necessary.
		4.5	Recommended strategy is documented for higher level approval according to company requirements.
5.	Define customer and supplier processes and standards	5.1	Reporting procedures for service requests are determined with client and supplier/s taking into account business continuity and criticality of Information Technology components and/or software.
		5.2	Response time standards are determined with client and supplier/s taking into account business continuity and criticality of Information Technology components and/or software.
		5.3	Escalation procedures are determined with client and supplier/s taking into account business continuity and criticality of Information Technology components and/or software.
		5.4	Help Desk or other support function is set up in accordance with agreed standards and procedures and in line with industry best practices.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to determining maintenance coverage.

Issues for documentation and reporting may include:

- audit trails
- naming standards
- version control
- project management templates
- report writing styles

System architecture may include:

- systems based around mainframes
- networks of mid-range machines and/or desktop personal computers
- variety of vendor products
- range of network protocols

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Warranty will vary from supplier to supplier and component to component and may include:

- legal document which defines rights (support v replacement) during a pre-determined period after customer acceptance of component/s
- responsibilities of parties
- penalties

Liaison methods may include but are not limited to:

- websites
- web applications
- Customer Relationship Management (CRM) technologies
- written reports
- group meetings
- one on one meetings
- e-mail, telephone calls and newsletters

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

Service Level Agreements involve:

- specifying business processes and requirements
- specifying and quantifying service levels
- identification and evaluation or auditing of service levels
- workload and performance considerations
- expectations regarding servicing
- penalties

Installation responsibilities will vary according to supplier proposal and may include:

- installation by supplier
- installation by customer
- installation by contractor

Client may include:

- department within an organization
- business requiring an e-commerce solution
- third party

The relationship and ease of access will vary depending on the client.

Support requirements may include but is not limited to:

- maintenance
- replacement of components
- performance monitoring
- one to one training
- group training

Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory regulations
- industry requirements
- ergonomic requirements

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to determine maintenance coverage in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of maintenance strategies, support processes and the development of Service Level Agreements
- analyse and evaluate client business functions, system architecture and support requirements
- determine warranties status, service arrangements and components/software present on system
- demonstrate the ability to determine maintenance strategies and support processes to maintaining the continuity of Information Technology operations and business functions that relate directly to the core business functions and other business support functions
- develop Service Level Agreements and collaboratively formulate maintenance strategies
- define help desk and support arrangements, escalation procedures, client service standards and processes
- produce relevant documentation and reports in accordance with enterprise policies and procedures
- compliance with all Occupational Health and Safety, enterprise and industry standards and requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- help desk and maintenance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- role of stakeholders and the degree of stakeholder involvement
- client business domain
- system's current functionality
- quality assurance practices
- Service Level Agreements
- warranties
- maintenance philosophies and strategies
- preventive maintenance practices
- client user support requirements

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- system architecture
- risk management
- cost/benefit analysis
- escalation procedures
- enterprise policies and procedures
- industry standards and codes of practice
- suppliers standards and processes
- manufacturer's maintenance specifications
- customer service practices

Skills
The ability to:

- solve problems
- participate in the development of strategic initiatives
- communicate effectively
- read and interpret technical documentation
- analyse, evaluate and present information
- work in a team
- contribute to the development of solutions and goals of a non-routine or contingency nature
- facilitate group discussions and gain consensus on concepts and issues
- negotiate skilfully
- produce reports and technical documentation apply change management skills
- maintain the continuity of Information Technology operations and business functions
- provide excellent customer service
- handle difficult clients
- resolve conflict
- analyse and manage risks
- determine support requirements
- establish procedures and agreements

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- systems architecture documentation
- warranty documents
- enterprise policies and procedures
- relevant standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2214A: Prepare disaster recovery/contingency plans

Competency Descriptor: This unit deals with the skills and knowledge required to analyse the impact of the system on the organisation and carry out risk analysis and disaster planning for the project.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Evaluate impact of system on business continuity	1.1	Business critical functions are identified from project documentation and discussion with client business area and project team.
		1.2	Critical data and software are identified from project documentation.
		1.3	Potential impact of failure is assessed against business dependency on Information Technology system.
		1.4	Contingency possibilities are identified and evaluated according to project specifications and cost constraints.
2.	Evaluate threats to system	2.1	Threats to the system are identified taking into consideration security analysis and internal and external business environment.
		2.2	Alternatives to minimise risk are evaluated against project specifications and cost constraints.
3.	Formulate prevention and recovery strategy	3.1	Prevention and recovery options to support critical business functions are evaluated against business requirements and cost constraints.
		3.2	In-built contingency is designed into the system and current site is in accordance with acceptance criteria.
		3.3	Current operational procedures are reviewed to ensure adequate risk safeguards and contingency plans.
		3.4	Disaster recovery and prevention strategy submitted to higher authorities for approval.
4.	Develop project plan to support strategy	4.1	Information Technology hardware, software and resources required for disaster recovery are identified and documented according to project specifications and cost constraints.

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4.2 Processes required for disaster strategy are identified and documented according to project standards.

4.3 Criteria to be met before cutting over to disaster strategy is identified and agreed to by higher authorities.

4.4 Disaster recovery plan is documented and submitted to higher authorities for review and sign off.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to prepare disaster recovery/contingency plans.

Threats may include:

- physical (weather, earthquake, flooding)
- security
- Information Technology failure (equipment, software)
- accident
- espionage
- sabotage (hackers)
- telecommunications network failure
- denial of service
- virus attack

Business critical functions will vary from organisation to organisation and industry to industry and typically could include:

- financials
- customer service functions
- payroll
- contingency plan

The contingency plan will vary in format and content detail but will:

- identify weaknesses and provide for the implementation of a disaster prevention program
- minimise disruption to business operations
- provide a coordinated approach to the disaster recovery process

Back-up strategy may include:

- hot standby site
- warm standby site
- cold standby site
- mobile van
- supplier
- bureau
- contacts through user group
- ASP third parties

Criteria to be met before cutting over may include:

- estimate of time before system is operational
- estimate of business impact
- authorizations to cutover
- actual system down time
- refresher of cutover plan

Integrity may include:

- data integrity
  - during storage
  - during processing
  - while in transit
- system integrity

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Security environment includes:

- all the relevant laws
- organizational security policies
- customs
- expertise
- knowledge that are or may be relevant
- threats to security, which is, or is held to be present in the environment

Client may include:

- department within an organization
- business requiring an e-commerce solution
- third party
- the relationship and ease of access will vary depending on the client

Commercial and business requirements may include:

- back-up
- storage and recovery of data
- access to internal network
- passwords/logons
- firewalls
- hacking
- confidentiality
- integrity
- availability

Equipment may include:

- offices
- telephones
- cabinets
- desk
- chairs
- storage facilities
- consumables

Contact methods may include:

- home
- business
- pager
- mobile
- e-mail

Test objectives may include:

- refine process and procedures for cut over
- install and test new equipment
- general education, and refresher
- specify failings in plan
- validate operation of equipment

Statutory requirements may include:

- privacy legislation
- industry imposed controls and standards
- strict laws regarding confidentiality and reporting of data

Details of the site may include:

- location
- size
- power
- cabling
- air-conditioning
- raised floor

Other resources may include:

- documentation
- copy of current disaster plan
- emergency contacts
- processes and procedures
- technical manuals
- system architecture
- and configuration details

Operational personnel may include:

- technical personnel
- support personnel
- coordination director

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to prepare disaster recovery/contingency plans in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of disaster recovery/contingency planning, treats to system and prevention and recovery strategies
- assess and determine business critical functions and potential impact of system failures
- demonstrate the ability to specify contingencies that minimise down time to business critical functions
- evaluate threats to system and formulate prevention and recovery strategies
- demonstrate the ability to clearly specify directions on how to handle serious downtime
- coordinate, plan and articulate flexible logistics requirements for disaster recovery
- development of disaster recovery/contingency plan covering physical security, Information Technology failure, accident, sabotage (hackers), denial of service, virus attack and telecommunications failure
- define recovery requirements from the perspective of business functions and the impact of an extended loss to operations and key business functions
- integrate contingency planning considerations into ongoing business planning and system development processes
- produce contingency plan that is understandable, easy to use and easy to maintain
- ensure that all issues relating to threats to the Information Technology system are considered and appropriate choices are made given the need to prevent, limit, recover, respond and recover from disasters
- compliance with all safety and operational standards, policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- threats to the system
- fire/safety
- back-up methodologies
- prevention and recovery strategies
- systems engineering
- specific components of the business planning process relevant to the development of Information Technology business solutions
- client business domain
- evaluating impact of system on business continuity
- system's current functionality
- security assurance specifications
- risk analysis and management
- acceptance criteria
- Information Technology components relevant to disaster recovery
- project planning
- acceptance testing
- disaster recovery/contingency planning
- security analysis
- enterprise policies and procedures
- industry standards
- statutory regulations
- legislations governing privacy and confidentiality
- Occupational Health and Safety requirements
- cutting over process
- vulnerability assessment

Skill
The ability to:

- solve problems
- assess and determine business critical functions
- evaluate impact of system on business continuity
- apply logistic management skills
- identify resources and procedures
- read and interpret technical documentation
- communicate effectively
- analyse, evaluate and present information
- assess and identify threats to the system
- formulate contingency and recovery strategies
- develop contingency plan
- identify criteria before cutting over
- facilitate group discussions and gain consensus on issues
- apply project planning skills
- manage risks
- negotiate skilfully
- conduct research

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- a vulnerability assessment and general definition of requirements
- Business Impact Analysis
- Acceptance test plan
- Information Technology security assurance specifications
- enterprise policies and procedures
- industry standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2304A: Determine best fit topology for a local network

Competency Descriptor: This unit deals with the skills and knowledge required to determine the best way computers can be connected to make a local network.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Determine user needs	1.1	The different segments of the proposed local network are identified based on business requirements.
	1.2	Segment needs are determined using local network functional analysis.
	1.3	Traffic content and volumes are estimated based on business requirements.
	1.4	A prioritised organisational local network functional matrix is developed.
2. Determine local network specification	2.1	Resource requirements are determined for each local network segment on the basis of functional analysis.
	2.2	Features of the physical environment are analysed for the effect on local network design.
	2.3	Typology options are costed in accordance with enterprise guidelines and procedures.
	2.4	Typology options are considered with reference to available resources and local network functional matrix.
	2.5	Appropriate local network typology is selected based on business requirements and functional analysis.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to determining best fit topology for a local network.

Network may include:

- Local Area Network
- Virtual Private Network
- Wireless Local Area Network

Resource requirements may vary depending on:

- number of users
- average transaction and file transfer size
- applications and telecommunication links

Routing may include:

Cables may include but not restricted to:

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- static routers
- dynamic routers

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems
- bridges, 3Com, Compaq, CISCO, IBM
- modems, analog, cable, ISDN, DSL
- servers, Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards, Adaptec, ARTIC, Compex, SMC
- switches, 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters, 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron
- routers & gateways, 3Com, CISCO, D-Link, Intel
- file & print servers, AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Router protocols may include:

- Hot Standby Router Protocol (HSRP)
- Border Gateway Protocol (BGP)
- Cisco Discovery Protocol (CDP)
- (Enhanced) Interior Gateway Routing Protocol
- Routing Information Protocol
- NetWare Link State Protocol
- Open Shortest-Path First Interior Gateway Protocol

Security protocols may include:

- Secure Multipurpose Internet Mail Extensions
- Secure Socket Layer & Transport Layer Security
- IP Security Protocol
- (Domain Name System Security Extensions)
- (Data Over Cable Service Interface Specification)
- IEEE 802.11 Protocol standard for secure wireless Local Area Network products.
- (Point-to-Point Network Tunnelling Protocol)

- unshielded twisted-pair (UTP)
- shielded twisted-pair (STP)
- fibre optics

Operating systems may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare
- Newton OS
- Windows CE
- EPOC

Servers may include:

- application/web servers: BEA Weblogic Servers, IBM VisualAge and WebSphere, Microsoft Host Integration Server, NetDynamics, Netscape Application Server
- email servers
- file & print servers
- FTP Servers
- proxy servers

Security standards may include:

- Information security risk management guidelines
- Information security management - Code of practice for information security management
- Information security management - Specification for information security management systems

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- (Secure Electronic Transactions)
- (Secure Shell)

Segment needs may include:

- cable type
- number of devices to be attached
- type of devices to be attached
- length of segment
- address

Typology options may include:

- star
- bus
- ring

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to determine best fit topology for local network in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of local network typologies, functional analysis and matrixes
- determine segment needs, network specification and traffic patterns and volume in accordance with user and business requirements
- develop local network functional matrix and apply this in select of typology options
- determine impact of physical environment on network design
- establish the resource requirements for the network segments
- evaluate and cost typology options
- demonstrate the ability to clearly identify the best local network topography based on the business or organisational needs
- conduct all tasks in accordance with all safety and operational requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

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Knowledge
Knowledge of:

- the characteristics and relative strengths and weaknesses of the primary Local Area Network typologies
- line sharing protocols
- scope of operation
- redundancy paths
- high/low speed links
- network protocols
- network security
- network traffic flow patterns
- network traffic load
- response time and reliability requirements
- types of user/applications
- growth projections and capacity planning
- constraints (costs, queuing)
- bridges
- routers
- gateways
- TCP/IP
- Ethernet
- hubs
- adapter cards
- jacks
- cabling particularly UTP (Unshielded Twisted Pair), STP (Shielded Twisted Pair) or fibre optics
- Occupational Health and Safety requirements
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- industry standards
- functional analysis
- network designing
- functional matrixes
- traffic analysis and traffic simulation tools
- assessing segment needs
- enterprise guidelines and procedures
- functional and business requirements
- statutory legislations

Skills
The ability to:

- use Local Area Network functional matrixes
- use traffic simulation tools
- analyse network traffic
- use network protocols
- connect networks and keeping cables tidy - “plug and play” cabling
- determine segment needs
- determine network requirements through analysis of users requirements
- read and interpret technical documentation
- evaluate traffic flow patterns
- cost typology options
- determine network specifications
- solve problems
- work safely
- determine best typology option
- analyse, evaluate and present information

(4)

Resource Implications

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The following resources should be made available:

- workplace (actual enterprise or simulated)
- business requirements and equipment specifications
- enterprise guidelines and procedures and industry standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
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Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2314A: Identify best fit topology for Wide Area Network

Competency Descriptor: This unit deals with the skills and knowledge required to identify the best way computers/Local Area Networks can be connected to make a wide area network

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify Wide Area Network needs	1.1	The different Local Area Network/ Wireless Local Area Network or Virtual Private Network segments of the proposed Wide Area Network are identified.
		1.2	Segment needs are determined using functional analysis.
		1.3	Traffic content and volumes are estimated according to expected organisational usage.
		1.4	An organisational Wide Area Network functional matrix is developed.
2.	Identify Wide Area Network specification	2.1	Resource requirements are identified for each Local Area Network/ Wireless Local Area Network or Virtual Private Network segment on the basis of functional analysis.
		2.2	Features of the physical environment are considered for the effect on Wide Area Network design.
		2.3	Typology options are costed taking into account cost constraints.
		2.4	Typology options are considered with reference to available resources and Wide Area Network functional matrix.
		2.5	Appropriate Wide Area Network typology is selected based on organisational requirements and cost constraints.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked identify best fit topology for Wide Area Network.

Wide Area Network requirements will vary depending on:

- number of users
- average transaction and file transfer size
- applications and telecommunication links

Security protocols may include:

- Secure Multipurpose Internet Mail Extensions
- Secure Socket Layer & Transport Layer Security
- IP Security Protocol
- (Domain Name System Security Extensions)
- (Data Over Cable Service Interface Specification)
- IEEE 802.11 Protocol standard for secure wireless Local Area Network products.
- (Point-to-Point Network Tunnelling Protocol)
- (Secure Electronic Transactions)
- (Secure Shell)

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems
- bridges, 3Com, Compaq, CISCO, IBM
- modems, analog, cable, ISDN, DSL
- servers, Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards, Adaptec, ARTIC, Compex, SMC
- switches, 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters, 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron
- routers & gateways, 3Com, CISCO, D-Link, Intel
- file & print servers, AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Routing may include:

- static routers
- dynamic routers

Telecommunications infrastructure variables may include:

- analogue
- digital
- wireless
- bandwidth
- circuit types
- modems
- microwaves
- satellites
- multiplexers

Operating systems may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

The physical layer variables may include:

- Switched circuits (PVCs and SVCs)
- leased lines
- T-carriers
- Synchronous Optical Network (SONET) technologies
- Asymmetrical Digital Subscriber Line (ADSL)

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Higher layer protocol may include:

- Integrated Services Digital Network (ISDN)
- Frame Relay
- Asynchronous transfer mode (ATM)

Layer 2 protocols may include:

- High Level Data Link Control (HDLC)
- Serial Line Internet Protocol (SLIP)
- Point to Point Protocol (PPP)

Router protocols may include:

- Hot Standby Router Protocol (HSRP)
- Border Gateway Protocol (BGP)
- Cisco Discovery Protocol (CDP)
- (Enhanced) Interior Gateway Routing Protocol
- Routing Information Protocol
- NetWare Link State Protocol
- Open Shortest-Path First Interior Gateway Protocol

Traffic content may include:

- data
- voice
- video

Cables may include but not restricted to:

- unshielded twisted-pair (UTP)
- shielded twisted-pair (STP)
- fibre optics

EVIDENCE GUIDE

Competency is to be demonstrated by identifying best fit topology for Wide Area Network in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of Wide Area Network typologies, telecommunication infrastructure, functional analysis and matrixes
- determine local area network segment needs, network specification and traffic patterns and volume in accordance with user and business requirements
- develop Wide Area Network functional matrix and apply this in select of typology options
- determine impact of physical environment on network design
- establish the resource requirements for the network segments
- evaluate and cost typology options
- demonstrate the ability to clearly identify the configuration for connecting a Local Area Network/ Wireless Local Area Network or Virtual Private Network into a Wide Area Network given budget constraints and business needs
- conduct all tasks in accordance with all safety and operational requirements

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- telecommunications infrastructure including the difference between digital and analogue networks
- operations of modems
- types of modems
- asynchronous and synchronous communication
- the use of microwaves and satellites communication in networking
- packet switching
- router operations
- TCP/IP protocols
- IP Addressing
- RIP
- scope of operation
- redundancy paths
- high/low speed links
- network protocols
- network security
- network traffic flow patterns
- network traffic load
- response time and reliability requirements
- types of user/applications
- growth projections and capacity planning
- constraints (costs, queuing)
- voice network design principles
- copyright and intellectual property legislations
- privacy legislations
- Occupational Health and Safety requirements

Skills
The ability to:

- use Local Area Network functional matrixes
- use traffic simulation tools
- analyse network traffic
- use network protocols
- determine segment needs
- determine network requirements through analysis of users requirements
- read and interpret technical documentation
- evaluate traffic flow patterns
- cost typology options
- determine network specifications
- solve problems
- work safely
- determine best typology option
- analyse, evaluate and present information

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- industry standards
- functional analysis
- network designing
- functional matrixes
- traffic analysis and traffic simulation tools
- assessing segment needs
- enterprise guidelines and procedures
- functional and business requirements
- statutory legislations

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- design documents relating to any Local Area Networks to be incorporated in the Wide Area Network
- equipment specifications
- enterprise guidelines and procedures and industry standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIPRG1874A: Implement secure encryption technologies

Competency Descriptor: This unit deals with the skills and knowledge required to ensure secure encryption are applied and monitored.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Method(s) of encryption are determined	1.1	User and enterprise security requirements are determined with reference to enterprise security plan.
		1.2	Encryption options are identified and analysed according to user and enterprise requirements.
		1.3	Appropriate encryption method(s) are selected based on business needs and in accordance with enterprise guidelines.
2.	Encryption method is applied	2.1	Encryption software/protocols are obtained as required according to business procurement procedures.
		2.2	Encryption system is applied to servers and users according to system/product requirements.
		2.3	Users are briefed on the encryption system and their responsibilities according to enterprise security plan.
		2.4	Access control data is stored as per enterprise/encryption requirements.
3.	Encryption system is monitored	3.1	Surveillance analysis on audit logs is performed in accordance with enterprise security plan.
		3.2	Encryption system is reviewed according to user and enterprise security requirements.
		3.3	Ongoing security is ensured through incident management and reporting according to enterprise security plan.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to implementing secure encryption technologies.

Servers required maybe one or more depending on size and functionality of website and may include:

- BEA Weblogic Servers
- Apache HTTP Server
- IBM VisualAge and WebSphere
- Microsoft-Internet-Information-Server
- Microsoft-IIS, Microsoft-IIS-W, Microsoft-PWS-95, & Microsoft-PWS
- Windows 2000 Server
- NetDynamics
- Lotus Domino
- Netscape Enterprise Server, Netscape-FastTrack, Netscape-Commerce
- Sun Micro Systems iPlanet Web Server
- iPlanet-Enterprise
- Sun Micro Systems Java Web Server
- Email Servers
- File & Print Servers
- FTP Servers
- Proxy Servers

Security protocol may include:

- Secure Multipurpose Internet Mail Extensions
- Secure Socket Layer & Transport Layer Security
- IP Security Protocol
  -Domain Name System Security Extensions
  -Data Over Cable Service Interface Specification
- IEEE 802.11 Protocol standard for secure wireless Local Area Network products
  -Point-to-Point Network Tunnelling Protocol
  -Secure Electronic Transactions
  -Secure Shell

Encryption standards may include:

- symmetric encryption
- asymmetric encryption
- one way encryption
- Unix-based GnuPG
- Windows version of GnuPG
- PGP has versions for Unix, Windows, and even the Mac.

Security purposes may include:

- authentication
- access control
- data confidentiality
- data integrity
- non-repudiation

Complete and dynamic VPN solutions may include;

- strong authentication
- strong encryption
- remote access integration
- secure tunnelling
- IP routing
- Firewalls
- scalability
- redundancy

Encryption software may include:

- Authentex DataSafe
- BlackBox
- Blowfish Advanced 97
- Crypto ActiveX Tool
- Distributed Management Systems
- PGP 6.0.2

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E-commerce models include any kind of business-related transaction conducted with the assistance of electronic tools across and within organisations or with individual customers. May include:

- Brochure Site
- Customer Service Site
- Real Time Site
- Quote Aggregator
- Insurance Mall
- Direct Channel
- Virtual Carrier
- Quote Mall
- Agent Mall
- Consumer Auction
- Carrier Auction
- Time Limited Information
- Investor Relations
- Technical Support
- Pre Sales Support and Corporate Awareness
- Proprietary Standard Promotion.

E-commerce models are changing all the time and the above are just an example of possible models.

Security standards may include:

- Information security risk management guidelines
- Code of practice for information security management
- Specification for information security management systems

Asset may include:

- data & information
- intellectual property
- physical assets
- people
- customer service/loyalty

The knowledge economy is broader than on-line participation and includes knowledge workers and organisations and recognises the value of life long learning and the need to capture knowledge within organisations to ensure effective functioning.

E-business encompasses how organisations:

- structure themselves
- capture information
- manage their workers

Relate and partner with other organisations and groups to achieve effective functioning, efficient operations and cultural shifts.

Knowledge economy involves all individuals participating on-line for:

- professional or personal research and learning
- communicating with friends or associates
- the pursuit of leisure activities

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to implement secure encryption technologies in accordance with the performance criteria and the range listed within the range of variables statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- encryption options are validated and analysed based on requirements
- selection of the appropriate encryption methods and software/protocol
- encryption system is applied to server and user
- users are instructed on usage and responsibilities
- encryption system is reviewed and monitored
- compliance with all security, procedural and reporting requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- security threats including eavesdropping, data interception, data corruption, data falsification, authentication issues
- organisational issues surrounding security
- encryption strength
- encryption types (public key, secret key, hash key)
- the function and features of symmetric encryption, asymmetric encryption and one way encryption
- examples of symmetric key encryption eg: DES, Triple DES, Skipjack, IDEA, Blowfish
- symmetric key encryption eg: RSA
- Asymmetric key-based algorithms - public key/private key encryption

Skills
The ability to:

- conduct surveillance analysis
- implement encryption protocols
- implement Local Area Network/Wireless Local Area Network, Virtual Private Network or Wide Area Network solutions
- undertake a network security risk assessment
- develop enterprise policies and procedures

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- PKI, PGP - Pretty Good Privacy, GnuPG
- one way encryption eg: message digests (MD5, SHA), function and features of timestamps, function and features of digital signatures, replay security, function and features of access control permissions, certificate related infrastructure (certificate authorities, registration authorities, repository services), TCP/IP protocols and applications
- copyright and intellectual property issues
- legislation governing privacy

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- web servers
- encryption software

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET0754A: Build a security shield for a network

Competency Descriptor: This unit deals with the skills and knowledge required to build a security shield for either a Virtual Private Network, a Wireless Local Area Network or a Local Area Network.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Develop security framework	1.1	Levels of security are determined based on the current and future business needs, the business strategic plan, customer expectations and the perceived value of information to competitors.
	1.2	Assets at risk are identified in accordance with enterprise security plan.
	1.3	System features are reviewed and evaluated for security risks as part of risk analysis.
	1.4	Security perimeters are identified within client/server system as required by security plan.
	1.5	Framework for secure electronic communications infrastructure (SECI) is developed for consideration.
	1.6	Hardware and software requirements are determined and prioritised according to security plan.
	1.7	Cost benefit analysis for proposed security shield is completed according to business requirements.
	1.8	Framework components are finalised in accordance with enterprise policies and procedures.
	1.9	Related policies and procedures are developed and distributed to users as required according to business requirements.
2. Implement security framework	2.1	Physical security perimeter is established as required through use of secure sites and required components as required by enterprise security plan.
	2.2	System security perimeter is established as required by security plan and chosen technology.
	2.3	Application security perimeter is established as required through server configuration.

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		2.4	Data security perimeter is established through application access on the client/server system, wireless and use of Virtual Private Network solutions as required.
		2.5	Physical security perimeter is established as required through use of secure sites and required components as required by enterprise security plan.
3.	Test and monitor security framework	3.1	A program of selective independent audits and penetration tests are developed and executed.
		3.2	Performance benchmarks are determined against enterprise security plan.
		3.3	Audit and test programs are implemented with results recorded, analysed and reported as required.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked build a security shield for a network.

Assets data and information may include:

- intellectual property
- physical assets
- people
- customer service/loyalty

Security perimeters may include:

- physical security perimeter
- system security perimeter
- application security perimeter
- data security perimeter

Security standards may include:

- Information security risk management guidelines
- Information security management - Code of practice for information security management
- Information security management - Specification for information security management systems
- Information technology - Lower layers security
- IEEE 802.11 Protocol standard for secure wireless Local Area Network products

Security protocols may include:

- Secure Multipurpose Internet Mail Extensions
- Secure Socket Layer & Transport Layer Security
- IP Security Protocol
- (Domain Name System Security Extensions)
- (Data Over Cable Service Interface Specification)
- (Point-to-Point Network Tunnelling Protocol)
- (Secure Electronic Transactions)
- (Secure Shell)

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Encryption includes built in or third party products which may be used in organisations who have high risk data and may include:

- RSA public key
- PGP (Pretty Good Privacy)
- symmetric ciphers
- asymmetric public-key ciphers
- sniffers
- Public-key Infrastructure (PKI)
- SSH
- DESlogin
- PKZIP
- Secure Socket Layer (SSL)
- Digital signatures

Secure electronic communication Infrastructure (SECI) may include:

- enterprise email strategy and capabilities
- cross platform authentication needs
- application integration security issues
- message confidentiality
- integrity and non-repudiation requirements
- e-commerce requirements

Software will most likely to be packaged software but can be supplied from many varying vendors and may include:

- security software
- audit software
- virus checking software
- encryption modules

Firewalls may be part of router configuration and/or proxy server including vendor products such as:

- Cisco Centri
- ConSeal
- EMD Armor
- Check Point FireWall-1
- CyberwallPLUS
- SATAN

Commercial and business requirements may include:

- backup
- storage and recovery of data
- access to internal network
- passwords/logons
- firewalls
- hacking
- confidentiality
- integrity
- availability

Systems may include:

- data bases
- applications
- servers
- operating systems
- gateways
- application service provider
- Internet service provider (ISP)

Perimeter functions may include:

- identification
- authentication
- access control
- auditing
- surveillance

Policies may include:

- incident response procedures
- network intrusion detection systems
- forensic procedures
- training and awareness raising policy

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Framework components may include:

- trusted systems with C and B assurance levels
- trusted hardware and operating systems (OSs) at selective desktops, servers, network points and mainframes
- operating systems capable of providing access control, intrusion detection and auditing and audit services
- firewall technologies
- multi platform directory services supporting relevant standards
- deployment of Public-key infrastructure (PKI), CA and key management services
- support for generalised security services interfaces
- personnel security

Complete and dynamic Virtual Private Network solutions may include:

- strong authentication
- strong encryption
- remote access integration
- secure tunnelling
- IP routing
- firewalls
- scalability
- redundancy

EVIDENCE GUIDE

Competency is to be demonstrated by build a security shield for a network in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of network security threats, LAN and WAN solutions and network security
- conduct security risk assessment, review security features and develop security procedures and policies
- develop cost effective security framework in accordance with security plan, business current and future requirements and security risk
- determine hardware and software components of the proposed framework and security levels
- establish data, application and physical security perimeters in accordance with requirements
- demonstrate the ability to develop, implement and maintain a network security shield for either VPN, LANs or WLANs
- develop and implement and execute auditing, testing and monitoring procedures against establish benchmarks and quality processes
- document, analyse and report auditing and test data in accordance with enterprise guidelines and procedures
- compliance with all safety, security and operational standards, guidelines, policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- security threats including eavesdropping, data interception, data corruption, data falsification, authentication issues
- organisational issues surrounding security
- security perimeters and their functions
- types of Virtual Private Networks including site to site, user to site, internet traffic and extranets
- function and operation of virtual private networking (VPN) concepts including encryption, firewalls, packet tunnelling and authentication
- common VPN issues including quality of service considerations (QOS), bandwidth, dynamic security environment
- network protocols and operating systems
- cryptographic check summing
- Local Area Network and Wide Area Network solutions
- TCP/IP protocols and applications
- auditing and penetration testing techniques
- copyright and intellectual property
- privacy legislations
- EDI security specifications such as S/MIME and the use of XML/EDI
- screened subnets
- virus detection software
- audit and intrusion detection systems
- industry standards
- statutory regulations
- network security risk assessment
- design, development and implementation of various VPN solutions
- implementing LAN and WAN solutions
- cost benefit analysis

Skills
The ability to:

- develop enterprise policies and procedures
- undertake a network security risk assessment
- determine levels of security
- determine security hardware and software requirements
- perform cost benefit analysis for proposed security shield
- develop security shield
- solve problems
- implement LAN and WAN solutions
- design, develop and implement various VPN solutions
- analyse, evaluate and present information
- read and interpret technical documentation
- test and monitor network security

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- network technical requirements
- network infrastructure including servers and security hardware and software
- enterprise guidelines and policies
- industry standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Use technology	Level 3	

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ITINET2174A: Design Information Technology security framework

Competency Descriptor: This unit deals with the skills and knowledge required to evaluate security requirements of the new system and to plan for controls.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine legal requirements for Information Technology security	1.1	Statutory requirements related to information to be stored is investigated and incorporated within system requirements.
		1.2	Implications for Information Technology security framework are evaluated against statutory and project requirements and system documents modified to reflect security requirements.
2.	Determine commercial requirements for Information Technology security	2.1	Commercial and business requirements relating to security are identified and compared with existing system requirements.
		2.2	Implications for Information Technology security framework are evaluated against external commercial requirements and system documents modified to reflect security requirements.
3.	Determine application requirements for Information Technology security	3.1	Documented application requirements relating to security are identified and any additional security needs are discussed with client users, senior management and audit staff.
		3.2	Specific user/data security hierarchy is prepared and data views and access paths are developed.
		3.3	Communications providers are contacted and liaised with, and vendor offerings are evaluated if appropriate.
		3.4	Security requirements are finalised and presented to senior management for approval.
4.	Conduct risk analysis	4.1	Security threats are identified taking into consideration the internal and external business environment.
		4.2	Precautions are formulated taking into consideration internal and external business requirements.
		4.3	Costs of loss are compared with costs of prevention or recovery and alternative processes to safeguard system are examined.

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		4.4	Recommended approach and requirements for risk containment are made to senior management for approval.
5.	Formulate Information Technology security objectives	5.1	Security operational requirements are defined and documented taking into consideration the business or project standards and acceptance criteria.
		5.2	Security policy is developed and documented based on risk analysis and agreed precautions.
		5.3	Security strategy is developed according to business requirements and acceptance criteria.
		5.4	Specific fit of physical and technical security is defined according to technical and environmental specifications.
		5.5	Operating procedures related to security are identified and documented according to project business standards.
6.	Assess technology fit	6.1	Best fit of technology to requirements is identified based on project outcomes, cost constraints and environmental influences.
		6.2	Proposed best fit of technology is evaluated according to project outcomes, cost constraints and environmental influences.
		6.3	Recommendations are prepared according to project requirements and submitted to higher authorities.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to designing Information Technology security framework.

Security environment may include:

- all the relevant laws
- organisational security policies
- customs
- expertise
- knowledge
- threats to security which are, or are held to be, present in the environment

Integrity include:

- data integrity in storage
- data integrity during processing
- data integrity while in transit
- system integrity

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Security specifications Define the actual or proposed technical specifications for implementation of the framework and IT assurance requirement and may include:

- Information security management;
- Information technology - Lower layers security

Security Assurance covers:

- Information Technology functionality that performs correctly
- protection against unintentional errors (by users or software)
- sufficient resistance to intentional penetration or by-pass

Commercial and business requirements may include:

- back-up
- storage and recovery of data
- access to internal network
- passwords/logons
- firewalls
- hacking
- confidentiality
- integrity
- availability

Security policy may cover:

- theft
- viruses
- standards (including archival, back-up, network)
- privacy
- audits
- alerts
- security objectives of the organisation

Existing architecture may include:

- systems based around mainframes
- networks of mid-range machines and/or desktop PCs
- local area network
- wide area network
- based on the Internet

Client may include:

- a department within an organisation
- a business requiring an e-commerce solution
- a third party

The relationship and ease of access will vary.

Statutory requirements may include:

- legislations (such as Privacy Act)
- industry imposed controls and standards
- strict laws regarding confidentiality and reporting of data

Physical nature of security may include:

- the system and its location should be considered
- wide area networks
- access by people other than employees
- if the system, itself, is in an intrinsically secure building

Security threats may include:

- eavesdropping
- manipulation
- impersonation
- penetration
- by-pass

Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory regulations
- vendor requirements
- ergonomic requirements
- environmental requirements

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Technical security requirements may include:

- hardware requirements
- ducting of cabling
- external cabling requirements

Operating procedures may cover:

- handling of security internal breaches
- handling customer requirements for security
- frequency and nature of archives
- frequency and nature of back-ups
- dealing with alerts
- conducting audits
- review of security
- performing tests

Quality benchmarks may include:

- Information processing – Documentation symbols and conventions for data, program and system flowcharts, program network charts and systems resources charts
- Information processing - Guidelines for the documentation of computer-based application systems
- Information processing - User documentation and cover information for consumer software packages
- Guide to the development of application software - On-screen documentation

Confidentiality covers:

- unauthorised reading of data in storage
- unauthorised reading of data during processing
- unauthorised reading of data while in transit

Security strategy may include:

- privacy
- authentication
- authorisation
- integrity
- security objectives of the organisation

Vendor offering may include:

- encryption
- authentication
- virus protection
- intrusion detection
- auditing services

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to design Information Technology security and framework in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of security risk assessment, security threats and security strategies
- demonstrate knowledge of legislations, codes of ethics and industry codes of practice and standards governing Information Technology security
- evaluate and determine commercial and business security requirements and modify relevant documentations to reflect requirements
- collaboratively determine and finalise applications security requirements and evaluate vendor services
- assess security risk, propose risk containment strategies and conduct cost analysis
- develop security strategies and policies, define security fit and establish operational procedures
- demonstrate sufficient knowledge of the basic elements of legal obligations with respect to privacy and the specific application security issues
- demonstrate the ability to incorporate common security products and procedures into a security design
- ensure that all issues relating to the communication and business requirements were considered and appropriate choices made given the risk analysis and system configuration
- perform all task in accordance with safety and security standards, guideline and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain, business function and organisation
- privacy issues and legislations
- statutory requirements
- security threats
- risk containment
- physical security
- technical security
- security strategies
- acceptance criteria
- ethics in Information Technology
- integrating application requirements with Information Technology security
- formulating Information Technology security objectives
- risk analysis
- assessing technology fit
- legislation restricting encryption techniques
- common criteria for Information Technology security evaluation
- development of security policies and procedures
- industry standards
- enterprise policies and procedures
- security technology and general features
- client/user security hierarchy
- applications requirements relating to security

Skills
The ability to:

- solve problems
- determine statutory requirements
- evaluate security requirements
- assess threat to system
- conduct risk analysis
- communicate effectively
- research information
- analyse, evaluate and present information
- develop security policy
- assess technology fit
- assess cost of loss versus cost of prevention
- evaluate vendor offerings
- develop security strategy
- produce relevant documentation
- read and interpret technical documentation
- make recommendations
- facilitate group discussions and gain consensus on issues

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- Information Technology specifications
- security environment relating to threats to security which are, or are held to be, present in the environment
- relevant laws/legislation, existing organisational security policies, organisational expertise and knowledge that may be relevant
- risk analysis tools/methodologies
- Information Technology security assurance specifications

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITIGEN3064A: Manage project integration

Competency Descriptor: This unit deals with the skills and knowledge required for the management of overall project scope towards establishing agreed baselines for supplier/client requirements and making trade-offs among competing objectives and alternatives in order to meet or exceed project objectives throughout the project life cycle.

Competency Field: Project Management

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Manage integration of the different aspects of project management	1.1 Project stakeholders are identified to determine the influence of others on achievement of project outcomes and project management.
	1.2 The requirements of all project management functions are analysed, rationalised and integrated to determine agreed, achievable project objectives.
	1.3 Project sub-plans are reviewed, rationalised and integrated into a structured, cohesive project plan to form the basis for ongoing project management.
	1.4 Integrated project control mechanisms are derived from project plans to accommodate change throughout the project life cycle.
2. Manage within the internal and external environment	2.1 The internal project working environment is managed to ensure work is conducted effectively throughout the project life cycle environments.
	2.2 Links are established and are maintained to manage the alignment between project objectives and organisation objectives throughout the project life cycle.
	2.3 The impact of conflicting requirements of different levels of management within the organisation on individual areas or on the overall project are managed to achieve project objectives, or if necessary, to modify project objectives.
	2.4 The impact of external environmental influences on individual areas or the overall project are managed to achieve project objectives, or if necessary, to modify project objectives.

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3.	Manage project throughout life cycle	3.1	All project management functions requirements are reviewed to establish project-wide phases, approval points, review points and other milestones.
		3.2	Project baselines are established and progress is reported in relation to the agreed baselines to provide a measure of performance throughout all phases of the project life cycle.
		3.3	Finalisation plans, procedures and activities are developed and managed to ensure that the final outcomes of the project phases and of the overall project meet agreed project objectives.
		3.4	Integration management lessons learnt are passed to higher project authority and feedback is provided for application in planning and implementation of later projects.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to managing project integration.

Achievable project objectives may be determined from the requirements of:

- the client (e.g. maximum value for money, or maximum performance at minimum cost)
- the supplier/contractor (e.g. minimum cost, minimum time, acceptable quality)
- end-user(s)(e.g. maximum performance as well as optional extras, want it now)
- higher project authorities(e.g. reputation, retention of market share, buying into market within the constraints of performance, time, cost, quality, resources and skills)

Finalisation activities may include:

- transition of responsibility/ownership of project deliverables/products
- transfer of assets to the client or originating owner
- determining warranty requirements
- project evaluation
- final audit/reconciliation
- settling of financial liabilities
- finalisation of account codes and other financial documentation
- forwarding finalisation report to higher project authority

The external environment may include:

- the parent organisation, enterprise, industry
- employee representative groups (e.g. unions, professional associations, lobby groups)
- political, social and societal influences
- public and media interest
- the physical environment (e.g. geography, ecology, sensitivity; external stakeholder expectations)

The internal environment may include:

- physical location of project within the organisation
- layout of project personnel and equipment
- personal working conditions (physical and emotional)
- team and interpersonal dynamics
- identity and differentiation of the project within the larger environment

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Levels of management may include:

- corporate/enterprise
- business unit
- programme/project
- operations/technical

The project may be affected by conflicting objectives and constraints within and between these levels of management which may vary over time.

The project plan may include:

- single document
- covering document which rationalises and integrates the requirements of the nine functions of project management contained in other project sub-plans

Lessons learnt may include:

- success criteria
- failure criteria
- suggestions for improvement

Lessons learnt may be reflected in changes to knowledge, training programs, data records and process instructions

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to manage project integration in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of project management functions, project control mechanisms and impact of organisation and other environment on project objectives
- demonstration of the evaluation and consultative processes to determine achievable project objectives, project plans and sub-plans covering the nine functions of project management
- demonstrate the ability to manage the link and co-ordination of individual control mechanisms to provide cohesive project-wide control, i.e. the integration of quality, financial, resource management, information management, communication and other control mechanisms
- evaluation of impact of organisation and other environment on project objectives
- implementation of project phases and milestones
- measurement and reporting of progress in relation to established baselines, finalisation plans, lists of integration management issues and recommended improvements
- compliance with enterprise policies, guidelines and procedures
- perform all tasks in accordance with standard operating procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- the project process
- the project life-cycle
- the relationship between project phases
- planning and control procedures
- resource management
- risk management
- suitable methodologies, techniques and tools available to project managers
- need for and application of leadership and management within a project environment
- internal and external environment factors that may affect the project
- Occupational Health and Safety requirements
- integration of project control mechanisms
- project management functions
- project milestones
- development of project plan
- project stakeholders and degree of involvement
- implementation of project phases
- success and failure criteria
- project control mechanisms
- integration management issues
- finalisation planning
- impact of organisation and other environment on project objectives

Skill
The ability to:

- solve problem
- analyse, diagnose, evaluate and develop criteria, knowledge or procedures
- identify project stakeholders
- determine the influence of others on achievement of project outcomes and project management
- provide leadership
- gain consensus on concepts
- manage within the internal and external environment
- review, rationalise and integrate project sub-plans into a structured, cohesive project plan
- communicate effectively
- analyse, evaluate and present information
- review project management functions requirements
- establish project-wide phases, approval points, review points and other milestones

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- project documents
- enterprise policies and procedures
- relevant standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
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Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET3114A: Develop comprehensive test plan

Competency Descriptor: This unit deals with the skills and knowledge required to carry out the collating of documentation of conditions and expected results sufficient to test the system thoroughly.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Establish test requirements	1.1	Context, scope and objectives of the required tests are determined in accordance with requirements.
		1.2	Test strategy and approach are developed, reviewed and verified in collaboration with all relevant parties in accordance with enterprise policies and procedures.
		1.3	Established test cycles are adequate to cover range of performance of system components.
		1.4	Testing methods are specified and documented in accordance with testing objectives and industry practices.
2.	Prepare test environment and gather tools	2.1	Structure of servers and user accounts are determined.
		2.2	Critical areas to test are determined and locations are accurately identified.
		2.3	Accessibility of unit documentation is ensured and all design documents, source code listing and requirements are on hand.
		2.4	User representatives or approval authorities are notified of scheduled test, if required.
		2.5	Operations staffs are notified of scheduled test in accordance with enterprise policies and procedures.
		2.6	Resources required to perform tests are determined and documented in accordance with testing specifications and enterprise policies.
		2.7	Tools and techniques for carrying out testing are specified and documented in accordance with enterprise policies and procedures.

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3.	Prepare test data	3.1	Test schedules are gathered in accordance with enterprise policies and procedures.
		3.2	Schedules are correlated with related functionality in accordance with established procedures.
		3.3	Testing schedule is checked for being properly vetted and validated following established procedures.
		3.4	Test drivers/stubs are prepared for test harness following established procedures.
		3.5	Quality benchmarks are established and documented in accordance with test methodology and industry practice.
		3.6	Test plan is registered and log entries are initiated in accordance with enterprise guidelines and procedures.
4.	Complete test plan	4.1	Any ancillary equipment is scheduled and made available in accordance with tests requirements.
		4.2	Test plan is walked through according to project requirements.
		4.3	All relevant parties are confirmed for attendance of walk through.
		4.4	All documentation and checklists are completed in accordance with enterprise policies and procedures.
		4.5	Test plan is completed in accordance with enterprise and industry standards.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to developing comprehensive test plan.

Type of testing may include:

- unit test
- security testing
- system testing
- integration testing
- solution testing
- stress testing

Test objectives may include:

- assessing performance of a particular product
- assessing performance of system
- determination of completeness of solution
- determining if solution meets project requirements
- assessing integration

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Scope of test may include:

- specific functionality
- range of functionalities
- critical functionalities
- system wide
- unit test
- hardware/software components

Context of test may include:

- testing on active system
- testing on isolated unit
- testing at time of high data traffic
- testing under conditions where data traffic has to be generated

Test plans information may include:

- Test Items
- Tested Features
- Features Not Tested (per cycle)
- Testing Strategy and Approach
- Syntax
- Description of Functionality – Functional testing
- Interface testing
- Acceptance testing
- Arguments for tests
- Expected Output
- Specific Exclusions
- Dependencies
- Test Case Success/Failure Criteria
- Pass/Fail Criteria for the Complete Test Cycle
- Entrance Criteria/Exit Criteria
- Test Suspension Criteria and Resumption Requirements
- Test Deliverables/Status Communications Vehicles
- Testing Tasks
- Hardware and Software Requirements
- Error management and configuration management
- Staffing and Training Needs/Assignments
- Test Schedules
- Risks, Assumptions and Contingencies
- Approvals

Test tools may include:

Code/unit/class testing:
- Assert Mate
- Bounds Checker
- C-Cover
- Code Review
- Code Wizard
- Insure++
- JCAST
- JavaPureCheck

Stress load testing:
- Automated Test Facilities
- e-Load
- E-TEST Suite

e-MONITOR
- Astra Site Manager
- Astra Site Test
- Auto Tester Web
- Load Runner
- Java Load

Applications testing
- Data Shark
- Cyrano Suite;
- Datatect
- PreVue-C/S

Quality benchmarks may include:

- Institute of Electrical and Electronic Engineers (IEEE) standards
- the Software Engineering Institute (SEI) standards
- the International Organisation for Standardization (ISO) standards
- enterprise quality standards
- benchmarks covering technical areas, cost savings, performance and quality
- client standards

Documentation and reporting procedures may cover:

- audit trails
- naming standards
- version control
- project management templates
- report writing styles
- templates for information gathering processes

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Type of computer application may include:

- operating systems
- communications software
- utility programs
- compilers
- database handlers

Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory regulations
- industry requirements
- ergonomic requirements

Testing method may include:

- Bottom Up testing
- Top Down testing

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to develop comprehensive test plan in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of the system/application being tested, testing strategies and the range of tests to be conducted on system/application
- establishing and documenting the objectives, context and scope of the tests
- collaboratively develop, review, verify and implement test strategy and approach
- establishing and documenting test cycles and testing methodologies
- preparation of test environment including determining resources, tools and techniques
- involvement of all relevant parties in the planning process, walk through and preparation of test data
- demonstration of the ability to consistently and accurately develop a comprehensive test plan detailing test conditions/cases to be applied, the data to be processed, the automated testing coverage, the expected results and the activities, dependencies and effort required to conduct the test
- registration of plan, initiation of log entries and preparation of all relevant documentation and checklists
- compliance with all enterprise and Occupational Health and Safety requirements
- perform all tasks in accordance with established procedures, standards and enterprise policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- testing strategies
- test approach
- objectives, scope and context of tests
- testing methodologies
- enterprise and industry quality benchmarks
- preparation of the testing environment
- operating systems
- system/application being tested
- testing techniques
- automated test tools
- industry standards
- enterprise policies and procedures
- project planning
- Occupational Health and Safety requirements
- test plan development
- test data
- types of test
- functionalities of the system/application being tested
- industry testing practices

Skill
The ability to:

- determine objectives, scope and context of tests
- develop test strategy and approaches
- communicate effectively
- work with others
- solve problems
- prepare test environment
- determine resource requirements
- identify test tools and techniques
- analyse, evaluate and present information
- prepare documentation and checklists
- develop test plan to requirements
- comply with safety requirements
- perform all tasks using the correct procedures
- negotiate effectively
- source and research information
- apply project planning skills
- establish quality benchmark and procedures
- comply with quality requirements

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- production environment included completed system
- project documentation such as System Engineering Management Plan, Test and Evaluation Program Plan, Project Plan
- enterprise standards, policies and procedures
- industry standards, quality benchmarks and best practices

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(5) Method of Assessment

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ITIGEN2114A: Model preferred system solution

Competency Descriptor: This unit deals with the skills and knowledge required to fit a physical model into the design phase of the methodology.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Review and confirm requirements information and any existing models	1.1	Requirements information gathered to date is reviewed and any areas that are not fully understood are clarified.
		1.2	The organisation's standards for developing models are identified and the model development method is checked for consistency with the organisational goal and problem context.
		1.3	Latent assumptions are identified and incorporated into modelling process.
		1.4	Each identified goal is resolved into tasks that users require to be performed to obtain the goal.
		1.5	System internal tasks are broadly defined to perform identified goals.
2.	Resolve conflicts and inconsistencies	2.1	Any missed opportunities are considered in the model development and against the problem's context.
		2.2	Bottlenecks, overlooked functionalities and other issues are highlighted and resolved with client user input as required.
3.	Build and test model	3.1	System model is developed based on architecture.
		3.2	Details of system model are clearly and coherently documented according to agreed project or company standards.
		3.3	Model is developed according to project deliverables and acceptance criteria and within a determined timeframe and project cost constraints.
		3.4	Model is tested against test plan following the correct procedures.
		3.5	The test data are documented in order to indicate whether test procedures accurately and thoroughly validate the model performance.

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4.	Ensure that the model represents a workable solution	4.1 A consensus view of all key Information Technology stakeholders is represented in the model.
		4.2 The model is checked by key Information Technology stakeholders to confirm common understanding of model/proposed solution.
		4.3 Model is prepared for key Information Technology stakeholder signoff.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to modelling preferred system solution.

Propose solution may include:

- building a total system
- acquiring packages with possible modification
- addition of hardware
- addition of network equipment
- addition of software
- e-commerce solutions
- new business models

Client may include;

- department within an organisation
- entire organisation
- existing client
- new client
- a business requiring an e-commerce solution
- third party

Work environment may involve:

- a business involved in a total organisational change
- a business involved in a systems only change
- a business involved in a business improvement process
- an e-commerce solution involving the total organisation or part of the organisation

Existing architecture may include:

- systems based around mainframes
- networks of mid-range machines and/or desktop PCs (networks can be local, intranet, Virtual Private Network, wide or based on the Internet)
- varying vendor products and network protocols

Architecture blueprint may involve a diagram of varying size and complexity indicating:

- the current system infrastructure
- software versions
- hardware model numbers

Business solutions may include:

- green field sites
- the integration of new solutions with existing Information Technology infrastructures
- e-commerce solutions

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Hardware can include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems
- bridges: 3Com, Compaq, CISCO, IBM
- modems: analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Documentation and reporting variables may include:

- audit trails
- naming standards
- version control
- project management templates
- report writing style
- templates for information gathering processes

Analysis techniques may include:

- gap analysis
- urgency and impact
- statistical and a range of current methodologies
- soft system methodologies
- Joint Application Development (JAD)

Sources of information may involve:

- change management plans
- project management plans
- current systems design plans
- business strategic plans

Operating system may include:

- pSOS+ (modular real-time operating system)
- UNIX
- real-time UNIX
- VRTX
- LYNX-OS
- SOLARIS
- LINUX
- DOS
- Windows
- Windows NT
- Windows CE

Constraints may include:

- time
- budget
- size of development team
- expertise required

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

Consulting techniques may include:

- interviews
- surveys
- chat rooms
- focus groups
- questionnaire
- surveys

Administration may include:

- a system required to maintain order
- system to manage the amount of information being processed by the project member/s

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Systems may include:

- legacy systems
- green field sites
- organisational wide systems
- discrete systems

Project may include:

- small project
- large project
- discrete project
- integrated project

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to model preferred system solution in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of modelling techniques, modelling methodologies and use of modelling tools
- review and confirm requirements information and clarification is sought on ambiguities
- selection of modelling methodology in accordance with organisation standards and incorporating all goals and assumptions into modelling process
- review and confirm existing models and resolve conflicts and inconsistencies
- demonstrate the ability to meet client requirements by developing specific areas of the system for further information or to confirm a software/hardware direction
- build and test model in accordance with system architecture, project deliverables, acceptance criteria, constraints and testing requirements
- ensuring that model represent the proposed solution and has the approval of key stakeholders
- produce relevant documentation and reports in accordance with project requirements
- compliance with all enterprise and Occupational Health and Safety requirements
- perform all tasks in accordance with established procedures, standards and enterprise policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- modelling techniques
- modelling methodologies
- system architecture
- operating systems
- project planning
- system development methodologies
- range of development tools
- client business function and organisation
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- building model
- testing model
- system solution
- project constraints
- project deliverables
- solution requirements
- source of information for requirements
- stakeholders and their role
- project acceptance criteria
- conflicts and inconsistencies in solution
- organisational standards, policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements
- project documentation processes

Skill
The ability to:

- solve problems
- analyse, evaluate and present information
- collect and interpret requirements information
- use modelling tools and techniques
- apply project planning skills
- resolve conflicts and inconsistencies
- build and test model
- communicate effectively
- read and interpret technical information
- manage own work
- work with others
- negotiate effectively
- produce relevant documentation
- work safely
- perform all work operations correctly

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- documents detailing:
  - the client's requirements
  - technical specifications
  - organisational and process goals
  - standards for model development
  - acceptance criteria
  - project deliverables
  - future organisational business processes
  - test plan
  - a project budget
- outcomes of the business analysis process
- enterprise standards, policies and procedures
- industry standards, quality benchmarks and best practices

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manage process • Select the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITIGEN0674A: Develop integration blueprint

Competency Descriptor: This unit deals with the skills and knowledge required to document and maintain details of the technology components.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Review technical architecture document/s	1.1	Technical architecture documents are reviewed and additional discussions are held with architect to ensure complete understanding if necessary.
		1.2	Technical considerations cover the overall project requirements and best technical fit against project requirements are identified and evaluated.
		1.3	Integration blueprint is updated according to best fit technical specifications in accordance with enterprise policies and procedures.
2.	Undertake compatibility tests	2.1	Components are assembled according to design specifications following the correct procedures.
		2.2	Components are tested for functionality against design specifications in accordance with enterprise guidelines and procedures.
		2.3	Non-compliance against technical specifications is accurately identified.
		2.4	Integration blueprint is updated to reflect functionality and non-compliance changes in accordance with enterprise policies and procedures.
3.	Assess risk areas	3.1	Scope of modifications required is identified from compatibility test.
		3.2	Modifications based on outcomes of compatibility test are negotiated with suppliers in accordance with enterprise policies and procedures.
		3.3	Integration blueprint is updated to reflect modifications to risk areas in accordance with enterprise policies and procedures.

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4.	Assess readiness for stress testing	4.1	Integration activities are continued until platform is stable.
		4.2	Compliance against technical requirements is evaluated following established procedures.
		4.3	Integration blueprint is updated for stress testing in accordance with enterprise policies and procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to developing integration blueprint.

Technical architecture document describes details of:

- components (abstractions of system level computational entities)
- connectors (being abstractions of component interrelationships)
- interaction protocols (the mechanisms guiding the interoperation of components)
- standard component interconnection and interoperation model

Component-based integration technologies may include:

- CORBA
- ActiveX
- JavaBeans
- COM
- DCOM
- OpenDoc

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

Enterprise policies and procedures may involve:

- safety requirements
- documentation procedures
- operating procedures
- process governing communication
- use of templates
- privacy and security policies

Modifications may include but are not restricted to:

- software patches/ upgrades
- internal/external hardware model information
- telecommunication hardware/software version details
- custom designed components
- driver/firmware revisions
- board/chip revisions
- software versions and distribution release details

Components may include:

- transactional processing component
- file system object in Windows operating systems

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Operating system may include:

- pSOS+ (modular real-time operating system)
- UNIX
- real-time UNIX
- VRTX
- LYNX-OS
- SOLARIS
- LINUX
- DOS
- Windows NT
- Windows CE

Hardware architectures may include:

- Intel (PC)
- Motorola/VMEbus
- Dec Alpha
- HP
- Sparc

Architectural description languages may include:

- Unicon
- ACME ADL

Integration blueprint may include:

- details of the specific technical components
- details of the levels of technical components

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to develop integration blueprint in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of current industry testing, design and development methodologies
- review and seek clarification of technical architectural documents
- identify and evaluate best technical fit against project requirements and assess all aspect of project requirements
- assemble and test components for compatibility and identify non-compliance with design specifications
- assess risk areas, identify scope of modifications required and successfully negotiate modifications with suppliers
- demonstrate ability to identify and capture technical design changes important for future integration activities on a particular platform and avoid integration activities which have been previously performed
- finding systematic methods to identify and select tests from component test suites to form integration test suites
- define a reusable integration infrastructure to build an integration test platform to cope with diversified component integrates
- produce relevant documentation and reports in accordance with project requirements
- compliance with all enterprise and Occupational Health and Safety requirements
- perform all tasks in accordance with established procedures, standards and enterprise policies and procedures

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(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- project requirements
- technical fits for project and technical considerations
- development and updating of integration blueprint
- assembly and testing of system components
- project planning
- risk assessment
- compatibility testing
- current industry development methodologies
- current industry design methodologies
- interpretation of technical architecture document/s
- technology suppliers and components
- current industry accepted testing procedures
- acceptable modifications for components
- stress load testing
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements

Skills
The ability to:

- assess risk
- identify scope of modifications required from compatibility test
- identify, analyse and evaluate a range of different solutions
- ensure that technical considerations cover the overall project requirements
- identify and evaluate best technical fit against project requirements
- negotiate effectively
- read, interpret and review technical architecture documents
- communicate effectively
- solve problems
- assemble components
- perform testing
- analyse, evaluate and present information
- work with others
- work safely
- update integration blueprint

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- a design specification
- a high-level diagrammatic view of the main system components
- enterprise policies and procedures
- industry standards and codes of practice
- relevant health and safety standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET0974A: Install Asynchronous Transfer Mode (ATM) Local Area Network (LAN)

Competency Descriptor: This unit deals with the skills and knowledge required to build an Asynchronous Transfer Mode (ATM) Local Area Network (LAN).

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify Asynchronous Transfer Mode (ATM) network typology	1.1	Current and future client user networking requirements are accurately identified from technical requirements.
		1.2	Appropriate structure is designed to meet client requirements such as video, audio or data applications with varying Quality of Service (QOS) requirements.
		1.3	Network addressing system with subnet and host identifications are designed for access to an Asynchronous Transfer Mode (ATM) network.
		1.4	Resource requirements are identified in accordance with Asynchronous Transfer Mode (ATM) network design.
2.	Installed and configured Asynchronous Transfer Mode (ATM) network	2.1	Network protocol applications are installed using pre-determined configurations as required by technical requirements.
		2.2	Asynchronous Transfer Mode (ATM) switches are installed and configured according to network requirements.
		2.3	Hosts and workstations are configured for Asynchronous Transfer Mode (ATM) access as required.
3.	Test Asynchronous Transfer Mode (ATM) network	3.1	Operation of services and communication between applications is tested making use of appropriate facilities and predetermined tests.
		3.2	Adjustments are made as required to predetermined configuration to meet functionality requirements in accordance with enterprise policies and procedures.

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RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to installing Asynchronous Transfers Mode (ATM) Local Area Network (LAN).

Uses of Asynchronous Transfers Mode (ATM) may include:

- high speed Local Area Network (LAN) backbone for a Virtual Local Area Network VLAN
- high speed desktop Local Area Network (LAN) technology for multimedia
- as an integrated Local Area Network-Wide Area Network (LAN-WAN) network

Types of Asynchronous Transfers Mode (ATM) may include:

- Native Asynchronous Transfers Mode (ATM) Application programming interface (API)
- Classical Internet Protocol (IP)
- Address Resolution Protocol (ARP)

Network configuration may include:

- Local Area Network (LAN) incorporating a range of servers, workstations, ethernet hubs
- Wide Area Network (WAN) incorporating a range of servers, workstations, ethernet hubs

Cable may include:

- twisted pair
- coax cable
- fibre optics

Internetworking Protocol Suites may include:

- Transmission Control Protocol/Internet Protocol (TCP/IP)
- Internetwork Packet Exchange (IPX)
- DECnet
- AppleTalk
- Internet Protocol version 6 (IPV6)

Resource requirements may include:

- Asynchronous Transfers Mode (ATM) switches
- cable
- routers
- hubs
- switches
- switched Ethernet links

Enterprise policies and procedures may involve:

- safety requirements
- documentation procedures
- operating procedures
- process governing communication
- use of templates
- privacy and security policies

Asynchronous Transfers Mode (ATM) switch design may include:

- shared backplane
- high speed memory
- matrix

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install an Asynchronous Transfer Mode (ATM) Local Area Network (LAN) in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of network typologies, Asynchronous Transfer Mode (ATM) architecture and layers and internetworking protocols
- determine current and future network requirements from technical requirements
- identify resources required and design appropriate systems in accordance with specifications
- install and configure Asynchronous Transfer Mode (ATM) switches, network components and protocols in accordance with network requirements and safety procedures
- demonstrate the ability to build an Asynchronous Transfer Mode (ATM) Local Area Network (LAN) that provides the required services and communication standards
- conduct required testing and appropriate modifications in accordance established procedures
- compliance with all enterprise and Occupational Health and Safety requirements
- perform all tasks in accordance with established procedures, standards and enterprise policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- Local Area Network (LAN) and Wide Area Network (WAN) network typologies
- routers
- Ethernet hubs
- bandwidth
- B-ISDN (Bearer-Integrated Services Digital Network) protocol reference model
- Asynchronous Transfer Mode (ATM) cells and the Adaptive Layer concept
- DSCs
- Asynchronous Transfer Mode (ATM) architecture and layers
- Network Interface Cards (NICs)
- Asynchronous Transfer Mode (ATM) switch designs
- Asynchronous Transfer Mode (ATM) switch functions
- Virtual paths and channels
- internetworking protocol suites

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- components of a Local Area Network (LAN) emulation service: Local Area Network (LAN) Emulation Configuration Server (LECS), Local Area Network (LAN) Emulation Server (LES) and Broadcast and Unknown Server (BUS)
- the Multiprotocol over Asynchronous Transfer Mode (MPOA) reference model
- Multiprotocol over Asynchronous Transfer Mode (MPOA) servers and components
- Multiprotocol over Asynchronous Transfer Mode (MPOA) clients
- Multiprotocol over Asynchronous Transfer Mode (MPOA) architecture
- connectivity across different subnets
- Media Access Control (MAC) addresses and network layer protocols
- Quality of Service (QoS)
- network design
- client requirements
- network addressing
- installing and configuring Asynchronous Transfer Mode (ATM) switches
- testing methodologies
- network protocols
- industry standards and codes of practice
- enterprise policies and procedures
- Occupational Health and Safety procedures

Skills
The ability to:

- implement Local Area Network (LAN) emulation client (LEC) software for installing Asynchronous Transfer Mode (ATM) networks over legacy networks
- install Ethernet- Asynchronous Transfer Mode (ATM) switches (EAS)
- install cabling
- work safely
- perform installation and configuration of network components
- identify technical requirements
- design network systems
- perform testing
- solve problems
- communicate effectively
- read and interpret technical documentation

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- a Local Area Network (LAN) network
- Asynchronous Transfer Mode (ATM) switches
- industry standards and codes of practice
- enterprise policies and procedures
- health and safety standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1	Level 2	Level 3
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Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITIGEN0684A: Pilot the developed system

Competency Descriptor: This unit deals with the skills and knowledge required to test and evaluate the developed system amongst a subset of clients to gauge reaction and gather feedback and also to test and evaluate the readiness of the system and organisation to progress to a full implementation of the system.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Prepare for pilot system	1.1	Executive support for the pilot is confirmed and sponsor/s are reminded of responsibilities in accordance with enterprise policies and procedures.
	1.2	Target group for pilot is confirmed in accordance with enterprise policies and procedures.
	1.3	Training and user participants' exposure to Joint Application Development (JAD) is facilitated in accordance with enterprise policies and procedures.
	1.4	Objectives, success criteria and acceptance criteria for pilot project are matched against acceptance criteria.
	1.5	Technical and organisational resources required for pilot implementation are identified and secured in accordance with enterprise policies and procedures.
	1.6	Project plan for pilot is completed and authorisation obtained from higher authorities in accordance with established procedures.
2. Install pilot system	2.1	Pilot system is installed and configured according to project plan and technical specifications.
	2.2	Technical readiness of system for pilot is validated against project plan.
	2.3	Data load up is completed and verified for accuracy by sponsor/s in accordance with enterprise policies and procedures.
	2.4	Relevant documentation is completed accurately and submitted to the relevant authority in accordance with enterprise guidelines and procedures.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to piloting the developed system.

Piloting process may include:

- consulting with development team or supplier for modification
- proceed to next phase in master development plan
- evaluating business needs and expectations
- determining where design/build stops and implementation begins

Details of pilot will vary according to:

- organisational requirements
- nature of system
- iterative approach used
- involvement of users in the process

Persons involved in process may include:

- technical operations/support personnel
- supplier
- project manager
- executive sponsor
- systems developers
- representative experts from relevant business areas (eg functional managers or operational staff)
- representative users
- personnel with an understanding of corporate governance (eg legal, audit and data security specialists)

Organisational resources may include:

- financial resources
- personnel
- equipment and materials
-

Technical support may include:

- involvement of development personnel
- involvement of supplier personnel
- technical knowledge and skills to facilitate the implementation of the pilot
- technical knowledge and skills to facilitate the knowledge transfer to first line support and users

Documentation and reporting variables may include:

- audit trails
- naming standards
- version control
- project management templates
- organisational report writing styles
- templates for information gathering processes

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

Project plan defines a number of project variables including:

- parties and their responsibilities
- project scope
- project objectives
- schedule
- project budget

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Enterprise policies and procedures may involve:

- safety requirements
- documentation procedures
- operating procedures
- process governing communication
- use of templates
- privacy and security policies

Client User may include:

- a department within an organisation
- an entire organisation
- a business requiring an e-commerce solution
- third party
- new client
- existing client

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to pilot the developed system in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of system development and design methodologies and piloting methodologies
- match objectives, acceptance criteria and success criteria for pilot against predetermined project acceptance criteria
- ensure training and exposure of users and support personnel to developmental methodologies and confirm target group
- identify and secure technical and organisational resources and gain authorisation required for implementation of different processes
- demonstrate the ability to plan, implement and evaluate the pilot and to transfer knowledge to users and front line support personnel
- consideration is given to system functionality, system integration, user interfaces, validation of inputs
- and outputs, system response and recovery times and whether the system meets the acceptance
- criteria
- produce relevant documentation and reports in accordance with project requirements
- compliance with all enterprise and Occupational Health and Safety requirements
- perform all tasks in accordance with established procedures, standards and enterprise policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted system piloting methodologies with knowledge of general features and capabilities
- current industry system development and design methodologies
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- development of pilot plan
- installation and configuration of pilot system
- preparation for system pilot
- target group for pilot
- Joint Application Development (JAD)
- project planning
- overall project objectives and client requirements
- client business domain
- technical resources for pilot implementation
- training requirements for system implementation
- current industry information gathering methodologies
- role of stakeholders and the degree of stakeholder involvement
- system current functionality
- quality assurance practices
- objectives, success criteria and acceptance criteria for pilot project
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements

Skills
The ability to:

- work in a team
- manage group work
- solve problems
- negotiate effectively
- gain consensus and agreement form different parties
- facilitate training
- identify and secure technical and organisational resources
- develop plans
- install and configure pilot system
- identify and select appropriate target group
- read and interpret technical documentation
- participate in the development of strategic initiatives
- analyse, evaluate and present information
- work safely
- perform tasks to specifications

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- the acceptance criteria
- the pilot plan and project plan
- technical materials and people to be involved in the pilot
- enterprise policies and procedure
- industry standards and codes of practice

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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ITIPRG1884A: Install and maintain valid authentication processes

Competency Descriptor: This unit deals with the skills and knowledge required to develop and implement an authentication process.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Method(s) of authentication is determined	1.1	User and enterprise security requirements are determined with reference to enterprise security plan.
		1.2	Authentication options are identified and analysed according to user and enterprise requirements.
		1.3	Appropriate authentication and authorisation processes are selected in accordance with enterprise guidelines.
2.	Authentication software /tools are configured	2.1	An authentication realm is created and reused as required to protect different areas of the server following the correct procedures and guidelines.
		2.2	Users and authorisation rules are added to the new realm according to business needs and in line with enterprise guidelines.
		2.3	The user attributes are described and the user attributes are set up following enterprise guidelines and procedures.
		2.4	An authentication filter on the appropriate on the server is set up in accordance with enterprise guidelines and procedures.
		2.5	The authentication filter and authorisation parameters are set up and committed according to business requirements.
3.	Authentication method is applied	3.1	Authentication protocols/software are obtained or developed as required.
		3.2	Related policies and procedures are developed and distributed to users according to business need.
		3.3	Users are briefed on the authentication system and their responsibilities according to enterprise security plan.
		3.4	Authentication system is applied to network and users according to system/product requirements.

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		3.5	Permission and configuration information is recorded and stored in a secure central location in accordance with enterprise guidelines and procedures.
4.	Authentication system is monitored	4.1	Authentication system is reviewed according to user and enterprise security and quality of service (QoS) requirements.
		4.2	Ongoing security is ensured through incident management and reporting according to enterprise security plan.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing and maintaining valid authentication processes.

Authentication software may include:

- SoftID
- SecurID Card
- SecurID token
- Resnet
- The Net
- ITSC
- XVSS Authentication Software
- RADIUS
- Funk
- OCSG/KERBEROS

Systems may include:

- data bases
- applications
- servers
- operating systems
- gateways
- application service provider
- Internet Service Provider

Servers may include:

- BEA Weblogic Servers
- Apache HTTP Server
- IBM VisualAge and WebSphere
- Microsoft-Internet-Information-Server
- Microsoft-IIS, Microsoft-IIS-W, Microsoft-PWS-95, & Microsoft-PWS
- Windows 2000 Server
- NetDynamics
- Lotus Domino
- Netscape Enterprise Server, Netscape-FastTrack, Netscape-Commerce

Security protocol may include:

- Secure Multipurpose Internet Mail Extensions
- Secure Socket Layer & Transport Layer Security
- IP Security Protocol
  (Domain Name System Security Extensions)
  (Data Over Cable Service Interface Specification)
- IEEE 802.11 Protocol standard for secure wireless Local Area Network products
  (Point-to-Point Network Tunnelling Protocol)
  (Secure Electronic Transactions)
  (Secure Shell)

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Servers may include:

- Sun Micro Systems iPlanet Web Server
- iPlanet-Enterprise
- Sun Micro Systems Java Web Server
- Email Servers
- File & Print Servers
- FTP Servers
- Proxy Servers

Authentication scope covers:

- singe-factor authentication schemes
- two factor authentication scheme
- this unit does not cover biometric authentication schemes

Security standards may include:

- Information security risk management guidelines
- Code of practice for information security management
- Specification for information security management systems

Authentication processes variables may include:

- token cards
- digital certificates
- password protocols
- authentication adaptors
- biometric authentication adaptors

Documentation and reporting issues may include:

- maintaining standards of definition
- standards of format
- user access information
- information should be clear and written in such a way that it will be readily understood by the target audience
- reports meet the specific output requirements and are presented in a logical and accessible manner

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install and maintain valid authentication processes in accordance with the performance criteria and the range listed within the range of variables statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of the function and operation of authentication and the function and operation of virtual private networking (VPN)
- authentication options are validated and analysed based on requirements

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(1) Critical Aspects and Evidence

- selection of the appropriate authentication and authorisation processes
- authentication software /tools are configured and authorisation parameters established
- appropriate protocols, policies and procedures are established and distributed
- authentication system is reviewed and monitored including incident management and quality of service (QoS) requirements
- compliance with all security, procedural and reporting requirements
- compliance with all enterprise and Occupational Health and Safety requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- organisational issues surrounding security
- the function and operation of virtual private networking (VPN) concepts
- common virtual private networking (VPN) issues including quality of service considerations (QoS)
- bandwidth
- dynamic security environment
- the function and operation of authentication
- the features of common password protocols e.g.: password authentication protocol (PAP), challenge handshake authentication protocol (CHAP),
- features and function of token cards
- features and function of authentication adaptors
- features and function of biometric authentication adaptors
- features and function of digital certificates
- resource accounting through authentication

Skills
The ability to:

- develop enterprise policies and procedures
- analyse enterprise security requirements and propose solutions
- perform scripting
- liaise with vendors / service providers as required
- demonstrate incident management skills
- communicate effectively
- read and interpret technical documentation
- work safely
- solve problems
- analyse, evaluate and present information

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- authentication methodologies
- authentication software/tools
- authorisation rules and parameters
- incident management
- copyright and intellectual property
- legislation governing privacy
- industry standards
- enterprise policies and procedures

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- web servers
- encryption software
- industry standards and codes of practice
- enterprise policies and procedures

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1604A: Implement system software changes

Competency Descriptor: This unit deals with the skills and knowledge required to implement system changes. These changes are primarily software oriented, but may be used more generically.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine system change required	1.1	Existence of documentary evidence to support change is ensured and the change required is evaluated.
		1.2	All documentation required in accordance with maintenance methodologies is completed in accordance with enterprise policies and procedures.
		1.3	Nature of the change with the client or sponsor is clarified if necessary, in accordance with enterprise policies and procedures.
		1.4	Technical data is obtained from repositories and other resources required to complete change are requested following established procedures.
2.	Carry out system change	2.1	Affected users are alerted prior to beginning the implementation and timing of change and methods for standby operation are agreed to in accordance with enterprise policies and procedures.
		2.2	Any initialization or configuration files are copied prior to implementation, where necessary.
		2.3	Achievability of rollback path in the event of failure is ensured.
		2.4	Changes required in software are made according to project or organizational guidelines.
		2.5	Changes are tested and verified according to implementation guide and organisational standards.
3.	Present changes to clients for acceptance	3.1	Changes are demonstrated to the clients and the impact of accepting changes is explained in accordance with enterprise policies and procedures.
		3.2	Changes are accepted and committed to by clients, further modifications are made or changes are rejected.

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		3.3	Documentation and repositories are updated in accordance with standards and any change management system is updated in accordance with enterprise policies and procedures.
4.	Perform hand-over to systems operations area	4.1	Documentation and client procedures are updated to reflect the changes made.
		4.2	Acceptance by systems operations is signed off in accordance with established procedures.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to implement system software changes.

Software and applications may include:

- packaged software
- in-house development
- out-sourced development
- full suites or individual components

Software change may include:

- replacing individual components
- replacing full suites
- installation of upgrades
- making modifications to existing components

Documentation and reporting variables may include:

- maintaining standards of definition
- maintaining standards of format
- maintaining user access information
- producing information that may be readily understood by the target audience
- producing reports that meet the specific output requirements and are presented in a logical and accessible manner

Organisational procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- procedures governing communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

Languages may include:

- Java
- Java Script
- C++
- Visual Basic
- XML

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to implement system software changes in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of system functionality, change management processes and tools and change control procedures
- determine system change required and confirm with relevant parties the nature of required change
- access and interpret appropriate technical information on change request and request all resources required to conduct change
- provide adequate notification and make required preparation prior to implementing change
- conduct system change in collaboration with relevant parties, provide appropriate standby operation and put adequate systems in place to deal with failure
- present and demonstrate changes to clients and explain impact of changes and approval is gained
- hand-over system to operational staff and complete sign off process
- complete, maintain and update all relevant reports, documentation and change management systems
- compliance with all enterprise and Occupational Health and Safety requirements
- perform all tasks in accordance with established procedures, standards and enterprise policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- help desk and maintenance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the role of stakeholders and the degree of stakeholder involvement
- client business domain

Skill
The ability to:

- solve problems
- participate in the development of strategic initiatives
- communicate effectively
- read and interpret technical documentation

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- system's current functionality
- quality assurance practices
- change management tools
- system testing
- change control procedures
- system under modification
- capacity planning
- programming languages
- change management processes
- risk analysis
- context of changes being implemented
- business scheduling requirements
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements

Skill
The ability to:

- analyse, evaluate and present information
- work in a team
- plan and organise work activities
- facilitate group discussion and gain consensus on issues
- negotiate effectively
- produce reports and technical documentation
- manage changes
- maintaining the continuity of Information Technology operations and business functions
- analyse risks
- provide excellent customer service
- resolve conflicts
- assess training needs
- perform programming

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- technical specifications and documentation
- organisational requirements
- a live system
- enterprise policies and procedures
- industry standards and code of practice

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1274A: Implement change management processes

Competency Descriptor: This unit deals with the skills and knowledge required to apply techniques that aid in evolution, composition and policy management of the design and implementation of information technology systems.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA	
1. Plan for change	1.1	Updating and loading guidelines are reviewed and applied in accordance with enterprise policies and procedures.
	1.2	All policies on regulatory, accessibility and industry standards that must be applied to any change are established.
	1.3	Version management plan is developed and approved in accordance with industry best practice and enterprise policies and procedures.
	1.4	Version identification procedures and conventions are developed and applied in accordance with enterprise policies and procedures.
	1.5	Links are managed and updated concurrently following established procedures.
	1.6	Communication procedures to inform user, business and stakeholders are developed in accordance with enterprise policies and procedures.
	1.7	The need for specific change is identified by performance being regularly measured against benchmarks and feedback being sought from users, the business and other relevant stakeholders.
	1.8	All activities are tracked and audited in order to determine changing user or business patterns that may result in the need for change.
	1.9	Key personnel responsible for identifying, authorising and implementing change management procedures are identified.

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2.	Implement change	2.1	A change management assessment for proposed change is conducted in accordance with industry best practice and enterprise policies and procedures.
		2.2	The personnel responsible for implementing the change are appointed and authorised in accordance with enterprise policies and procedures.
		2.3	New performance benchmarks and milestones are developed, signed off and applied to the change following established procedures.
		2.4	Change management methodology for the specific change is identified and communicated to relevant stakeholders in accordance with enterprise policies and procedures.
		2.5	Change is implemented in accordance with the appropriate guidelines, procedures and policies.
		2.6	Where concurrent change is being implemented, changes are prioritised with resources and effort allocated accordingly.
		2.7	Stakeholders are involved wherever and whenever possible.
		2.8	Training requirements are identified to support the change.
		2.9	Change is communicated to stakeholders in accordance with enterprise policies and procedures.
3.	Monitor implementation	3.1	Change performance is measured against new benchmarks following the correct procedures.
		3.2	Automated quality software is applied in accordance with implementation requirements.
		3.3	Implementation is measures against milestones and benchmarks in accordance with appropriate guidelines, procedures and policies.
		3.4	Feedback channels to users and other stakeholders, including employees are established and any relevant information is acted on in accordance with enterprise policies and procedures.

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4.	Review implementation results	4.1	Training standards of support staff and users are reviewed in accordance with appropriate guidelines, procedures and policies.
		4.2	User, employee and business comments and feedback are sought and acted upon in accordance with enterprise policies and procedures.
		4.3	Feedback on the impact of the change is provided to all users in accordance with appropriate guidelines, procedures and policies.
		4.4	Change process is signed off as complete in accordance with enterprise policies and procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to implement change management processes.

Change may include:

- software changes
- hardware changes
- changes to part of system
- total system change
- implementation of business improvement systems
- an e-business solution

A change management assessment include assessment of the impact on:

- business
- people
- communications
- clients
- implementation
- property

Workplace environment may involve a business involved in:

- a total organisational change
- a systems only change
- a business improvement process
- an e-business solution involving the total organisation or part of the organisation

Version management plan may include:

- backup frequency
- location and storage requirements
- templates, content and design consistency guidelines that separate content creation from software interface
- directory and file naming conventions

Feedback channels may include:

- written reports
- group meetings
- one on one meetings
- e-mail
- telephone calls
- newsletters
- bulletins

Other relevant stakeholders may include:

- software developers
- project managers
- system operations personnel
- support staff

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Documentation and reporting processes may include:

- compliance with International Organization for Standardization (ISO) standards
- audit trails
- naming standards
- version control
- templates for project management
- guidelines governing report writing
- templates for information gathering
- updating and loading guidelines are available
- policies on regulatory, accessibility and industry standards

Liaison methods may include but are not limited to:

- websites
- web applications
- Customer relationship Management (CRM) technologies
- written reports
- group meetings
- one on one meetings
- e-mail, telephone calls, newsletters, etc.

Training requirements may include:

- skills and knowledge required to support the change
- change management procedures
- application of developed guidelines and procedures
- sensitization of the impact of the change being implemented

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

Enterprise policies and procedures may involve:

- safety requirements
- documentation procedures
- operating procedures
- process governing communication
- use of templates
- privacy and security policies

Consulting techniques may include:

- interviews
- surveys
- chat rooms
- focus groups

Analysis Techniques may include:

- gap analysis
- urgency and impact
- statistical
- a range of current methodologies

Systems may include:

- work stations, personal computers
- networks
- remote sites
- servers

Automated quality software may include:

- link managers
- browser sniffers

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to implement change management processes in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of change management processes, version management planning and procedures and change implementation
- plan for change including reviewing and application of appropriate policies and guidelines
- development of communication policies, version management plan and version identification procedures and conventions
- collect and analyse information from user activities, feedback and audits
- conduct change management assessment, training needs analysis and quality benchmarks
- determine elements that require changing, change management methodology, personnel involved in the process and manage allocation of resources
- implement and monitor change, measure change implementation against established benchmarks and provide feedback to relevant parties
- demonstrate the ability to plan for, implement, monitor and review change and apply existing guidelines and policies to the change management process
- change management intervention deals effectively with version management and maintaining compliance with existing accessibility and other policies
- produce all relevant reports, documentation and in compliance with all guidelines, policies and procedures
- compliance with all enterprise and Occupational Health and Safety requirements
- perform all tasks in accordance with established procedures, standards and enterprise policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- change management processes
- operating systems
- access security procedures
- copyright and intellectual property requirements
- user analysis
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the role of stakeholders and the degree of stakeholder involvement
- client business domain
- system's current functionality
- quality assurance practices
- project management
- performance benchmarking
- stakeholder communication
- version management plan and procedures
- version identification procedures and conventions
- directory management and maintenance
- legislations governing privacy
- data gathering and analysis
- version back up and storage
- change implementation
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements

Skills
The ability to:

- develop and implement guidelines
- develop appropriate management plan
- manage processes
- analyse, evaluate and present information
- read and interpret technical documentation
- prepare for change
- monitor change implementation
- communicate effectively
- gather and review feedback
- identify training requirements
- produce relevant reports and documentation
- work safely
- perform all task in compliance with appropriate guidelines, procedures and policies

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- updating and loading guidelines
- version control guidelines
- industry standards and codes of practice
- enterprise guidelines and procedures

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1554A: Coordinate change requests

Competency Descriptor: This unit deals with the skills and knowledge required to analyse change requests and prioritise them.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Classify and monitor change requests	1.1	Change requests issued by the client are received in accordance with enterprise policies and procedures.
		1.2	All change requests are classified and prioritised according to business continuity, criticality of Information Technology components and Service Level Agreements.
2.	Determine priority settings	2.1	Risks to business continuity are identified and changes, which reduce this, are prioritised for implementation.
		2.2	The costs and benefits of implementing changes over others are evaluated against current system.
		2.3	Change analysis is scheduled in accordance with business down periods and periods of business critical activities.
3.	Develop change analysis work-plan to develop and implement changes	3.1	Benefits and costs of how and when change is made are examined against risks to business continuity.
		3.2	Similar change requests, which might be developed and implemented simultaneously, are analysed against business and system requirements.
		3.3	The impact to the system and the organisation of how and when the change is made is determined against system and business requirements.
		3.4	Reason for importance of change to key people is communicated and information is circulated in accordance with enterprise policies and procedures.
		3.5	The resources necessary to carry out the change development process are determined, taking into account time and cost constraints, and change requests are handed to technical group.
4.	Confirm change plan is complete and satisfies client users.	4.1	Change plan documentation is reviewed to ensure all completed in accordance with system documentation standards.

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4.2 Feedback session is conducted with client users group to ensure all changes plan requirements are going to work in accordance with guidelines, policies and procedures.

4.3 Any follow-up work is completed and any recommendations for change in procedures or documentation standards are made in accordance with enterprise policies and procedures.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to coordinating change requests.

Type of change may include:

- software changes
- hardware changes
- changes to part of system
- total system change
- implementation of business improvement systems
- an e-business solution
- fixing a serious problem that stops the system functioning
- minor request for a cosmetic change

Service level agreements may include:

- business processes and requirements
- clearly specified and quantified service levels
- evaluation or audit of service levels
- workload and performance considerations
- expectations regarding servicing
- penalties
- charge back to business units

Client may include:

- a department within an organisation
- an entire organisation
- a business requiring an e-commerce solution
- third party
- new client
- existing client

Maintenance options can include:

- on-site response
- remote diagnostics
- return to depot
- business hours only support
- 24x7 hours support
- telephone support
- real-time on line support
- second level support

Help desk and maintenance structures may include.

- a call centre or a general contact point that then calls a supplier or other technician
- a call centre staffed by technicians capable of solving the problem
- real-time on-line support
- web based support

Information Technology may include:

- operating systems
- hardware
- out-sourced developed software
- in-house developed software
- networks

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Hardware may include Information Technology equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems
- bridges, 3Com, Compaq, CISCO, IBM
- modems, analog, cable, ISDN, DSL
- servers, Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards, Adaptec, ARTIC, Compex, SMC
- switches, 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters, 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron
- routers & gateways, 3Com, CISCO, D-Link, Intel
- file & print servers, AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- financial control mechanisms
- procedures governing communication with stakeholders
- dispute resolution procedures
- modification procedures
- processes for determining size and cost
- International Standardization Organization (ISO) standards
- organisational policies and procedures
- vendor requirements

Enterprise policies and procedures may involve:

- safety requirements
- documentation procedures
- operating procedures
- process governing communication
- use of templates
- privacy and security policies

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

Documentation and reporting variables may include:

- audit trails
- naming standards
- version control
- project management templates
- report writing style
- templates for information gathering processes

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to coordinate change requests in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of change management systems, change plan development and change analysis
- receive, classify and monitor change requests in accordance with business requirements, service Level Agreements and criticality of the system component(s)
- assess risk to business continuity of change request, conduct cost-benefit analysis and prioritise change which minimizes disruption to business operations
- collaboratively develop change plan, assess impact on system, determine resource implications and implement changes
- review change procedures, communicate information, asses feedback and make recommendations based on evaluations
- complete, maintain and update all relevant reports, documentation, change management procedures and documentation standards
- compliance with all enterprise and Occupational Health and Safety requirements
- perform all tasks in accordance with established procedures, standards and enterprise policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- help desk and maintenance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the role of stakeholders and the degree of stakeholder involvement
- the client business domain
- the system's current functionality
- quality assurance practices
- change management tools
- change management processes
- change control procedures
- capacity planning
- risk analysis
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements
- business requirements
- cost-benefits analysis
- customer service requirements
- Service Level Agreements
- change analysis
- system documentation standards
- change plan development

Skill
The ability to:

- solve problems
- participate in the development of strategic initiatives
- communicate effectively
- read and interpret technical documentation
- analyse, evaluate and present information
- work in a team
- plan and organise work activities
- facilitate group discussion and gain consensus on issues
- negotiate effectively
- produce reports and technical documentation
- develop and implement changes
- assess cost and benefits
- determine resource requirements
- manage changes
- maintaining the continuity of Information Technology operations and business functions
- analyse risks
- provide excellent customer service
- resolve conflicts
- reviewing change procedures

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- Service Level Agreements
- business requirements
- documentation standards
- enterprise policies and procedures
- industry standards and codes of practice

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1534A: Establish and maintain client user liaison during support activity

Competency Descriptor: This unit deals with the skills and knowledge required to liaise with a client user while providing support.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify client user liaison procedures	1.1	Area impacted by the support activity is accurately identified in accordance with support requests.
		1.2	Organisational support standards and Service Level Agreement (SLA) are reviewed.
		1.3	The organisational scope of the issue and the departments, users, sponsor involved in the resolution of issue are established in accordance with guidelines, policies and procedures.
		1.4	All prior client user support arrangements are evaluated and the obligations of the organisation are determined in accordance with guidelines, policies and procedures.
		1.5	Organisation structure and culture are identified and analysed to collect information on client liaison procedure.
		1.6	Each component of the requirement is analysed and any necessary actions to start client user liaison are determined.
2.	Determine appropriate client user to make contact with	2.1	Support call documentation is reviewed to determine if user making original call should be the contact.
		2.2	Existence of client user expert/s or contacts relating to the issue is/are identified.
		2.3	Most appropriate approach for making contact is evaluated taking into consideration standards and procedures.
		2.4	Person/s with information or responsibility relating to the issue is/are specifically nominated.
		2.5	Credentials are checked and the acceptability of the target nominee/s is verified.

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3.	Establish contact and develop reporting protocol	3.1	Dialogue is initiated with the contact and the scope of the liaison for solving this support issue is agreed upon in accordance with enterprise policies and procedures.
		3.2	Method of contact and the times for contact are established in accordance with enterprise policies and procedures.
		3.3	Higher authority reporting protocol is established agreeable to all parties, taking into account escalation standards.
4.	Maintain established communication links	4.1	Reporting protocol during the support activity is maintained in accordance with guidelines, policies and procedures.
		4.2	Feedback is actioned and all communiqués resulting from the liaison are confirmed in accordance with guidelines, policies and procedures.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to establishing and maintaining client user liaison during support activity.

Service level agreements may include:

- business processes and requirements
- clearly specified and quantified service levels
- evaluation or audit of service levels
- workload and performance considerations
- expectations regarding servicing
- penalties
- charge back to business units

Client may include:

- a department within an organisation
- an entire organisation
- a business requiring an e-commerce solution
- third party
- new client
- existing client

Liaison methods may include but are not limited to:

- websites
- web applications
- Customer Relationship Management (CRM) technologies
- written reports
- group meetings
- one on one meetings
- e-mail, telephone call and newsletters

Client user contact may include:

- senior managers
- lower level management
- Information Technology support personnel
- Individual worker

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Enterprise policies and procedures may involve:

- safety requirements
- documentation procedures
- operating procedures
- process governing communication
- use of templates
- privacy and security policies

Hardware may include Information Technology equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems
- bridges, 3Com, Compaq, CISCO, IBM
- modems, analog, cable, ISDN, DSL
- servers, Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards, Adaptec, ARTIC, Compex, SMC
- switches, 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters, 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron
- routers & gateways, 3Com, CISCO, D-Link, Intel
- file & print servers, AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- financial control mechanisms
- procedures governing communication with stakeholders
- dispute resolution procedures
- modification procedures
- processes for determining size and cost
- International Standardization Organization (ISO) standards
- organisational policies and procedures
- vendor requirements

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

Operating system may include:

- Win 95/98/NT/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

Software and applications may include:

- packaged software
- out-sourced developed software
- in-house developed software

Documentation and reporting variables may include:

- audit trails
- naming standards
- version control
- project management templates
- report writing style
- templates for information gathering processes

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Consultative techniques may include:

- interviews
- surveys
- chat rooms
- focus groups

Analysis techniques may include:

- gap analysis
- urgency and impact
- statistical
- current methodologies

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to establish and maintain client user liaison during support activity in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of Service Level Agreements, client user liaison procedures and contact protocols
- review and evaluate all Service Level Agreement, client user support standards and client user support arrangements
- assess impact of support activity and determine level of involvement of different parties
- identify client user liaison procedures from analysis of organisational structure and culture and determine the necessary actions to start client user liaison
- determine appropriate client user liaison contact and develop contact approach
- establish and develop contact, reporting protocol and maintain establish links with client user
- communicate information, gain feedback and have dialogue in accordance with established procedures
- complete, maintain and update all relevant reports, documentation, client user liaison procedures and contact standards
- compliance with all enterprise and Occupational Health and Safety requirements
- perform all tasks in accordance with established protocols, procedures, standards and enterprise policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- help desk and maintenance practices
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- the role of stakeholders and the degree of stakeholder involvement
- the client business domain
- the system's current functionality
- quality assurance practices
- consultative and analysis techniques
- contact protocols
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements
- customer service requirements
- Service Level Agreements
- client user liaison procedures
- organisational structure and culture
- reporting protocols
- project planning
- support issues

Skill
The ability to:

- solve problems
- participate in the development of strategic initiatives
- communicate effectively
- read and interpret technical documentation
- analyse, evaluate and present information
- work in a team
- determine scope of support issues
- plan and organise work activities
- facilitate group discussion and gain consensus on issues
- negotiate effectively
- apply project management skills
- produce reports and technical documentation
- provide excellent customer service
- establish and follow appropriate protocols
- identify and establish appropriate client user contact
- resolve conflicts
- establish and maintain communication links

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- Service Level Agreements
- client user liaison procedures
- client user organisational structure and culture
- escalation procedures
- documentation processes
- enterprise policies and procedures
- industry standards and codes of practice

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(5) Method of Assessment

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Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
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Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1694A: Undertake capacity planning

Competency Descriptor: This unit deals with the skills and knowledge required to assess current and future capacity requirements of system.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Analyse existing system capacity	1.1	Existing system configuration (hardware/software) information is reviewed to determine capacity issues.
		1.2	Relationship between current workload/s, capacity and performance is identified and recognised.
		1.3	Current Service Level Agreement is reviewed to determine capacity standards to be adhered to.
		1.4	Fault logs caused by capacity problems are examined and perceived and actual capacity issues are reviewed with users.
2.	Determine future capacity requirements	2.1	Discussion with users about future requirements and forecasted workload is completed in accordance with enterprise policies and procedures.
		2.2	Actual workloads are compared with predictions for the period to determine capacity problem areas.
		2.3	Resource requirements and actual equipment and resources required are estimated.
		2.4	A financial analysis of the capacity requirements is undertaken to determine an effective strategy for enhancement.
		2.5	Recommendations are documented and presented to management in accordance with enterprise policies and procedures.
3.	Develop plan for capacity enhancements	3.1	Impact of changes on operations is recognised and implementation plan minimises the impact of change.
		3.2	Availability of finances is taken into account when planning enhanced capacity.
		3.3	User requirements and staff availability are taken into consideration when planning the capacity enhancement.

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		3.4	Prepared plan is submitted for approval by management and user departments in accordance with enterprise policies and procedures.
4.	Install capacity enhancements	4.1	Capacity enhancements are installed in accordance with the plan following the correct procedures.
		4.2	Capacity increment due to installed equipment is measurable and provides the additional resources expected.
		4.3	All documentation, registers and reports are updated to reflect the additional capacity enhancements in accordance with enterprise policies and procedures.
5.	Monitor on-going capacity requirements	5.1	Development design phases of applications are monitored to assess impact on capacity and performance.
		5.2	A performance database is implemented, benchmarks are set and performance is regularly reviewed.
		5.3	Impact of new technology on capacity and performance is assessed.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to undertaking capacity planning.

Existing capacity may include:

- speed of operation of the system
- the throughput
- redundancies
- accessibility
- quantity of data that can be handle
- available memory
- level of security
- currency of technology

Workload forecasts may include but not limited to:

- trends in existing workload
- corporate business plans
- user interviews
- user questionnaires
- application development personnel
- outside influences e.g. legal requirements
- competitive pressures
- economic trends

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Planning and financial analysis issues may include:

- large expenditures may not be able to be incurred in one go
- enhancements may have to be staged over a period of time based upon the availability of cash flow
- balancing expenditure against returns
- rapid change in technology

Client may include:

- a department within an organisation
- an entire organisation
- a business requiring an e-commerce solution
- third party
- new client
- existing client

Maintenance options may include:

- on-site response
- remote diagnostics
- return to depot
- on-line real-time support
- web based support
- business hours only support
- 24x7 hours support
- telephone support
- second level support

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- financial control mechanisms
- procedures governing communication with stakeholders
- dispute resolution procedures
- modification procedures
- processes for determining size and cost
- International Standardization Organization (ISO) standards
- organisational policies and procedures
- vendor requirements

Service level agreements may include:

- business processes and requirements
- clearly specified and quantified service levels
- evaluation or audit of service levels
- workload and performance considerations
- expectations regarding servicing
- penalties
- charge back to business units

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

Reporting procedures may involve:

- help desk
- call centre or a general contact point, which then calls a supplier or other technician
- call centre staffed by technicians capable of solving the problem
- manual or computerised systems to monitor change request

Documentation and reporting variables may include:

- audit trails
- naming standards
- version control
- project management templates
- report writing style
- templates for information gathering processes

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Organisational procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- procedures governing communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

Software may include:

- packaged software
- out-sourced developed software
- in-house developed software
- individual components
- full suites of components
- software upgrades

Groupware applications and servers include:

- Novell GroupWise
- Lotus Notes, Domino
- MS Exchange
- Netscape Suite Spot
- Team ware Office
- Email applications
- Group calendars
- Collaborative writing systems
- Shared whiteboards
- Decision support systems
- Application/web servers: BEA Web logic Servers, IBM Visual Age and Web Sphere, Microsoft Host Integration Server, Net Dynamics, Netscape Application Server
- Email Servers
- File & Print Servers
- FTP Servers
- Proxy Servers

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to undertake capacity planning in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of component performance management, capacity planning procedures and capacity planning tools
- assess the relationship between current workload/s, capacity and performance of the system
- collaboratively review and evaluate actual and perceived capacity issues and analyse current system capacity
- assess capacity problems through evaluation of Service Level Agreements and fault logs
- determine future capacity requirements, conduct financial analysis and estimate resource requirements

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Critical Aspects and Evidence (Cont'd)

- demonstrate the ability to accurately assess current and future capacity requirements of system
- determine effective strategy for enhancement and give viable recommendations on the way forward
- demonstrate the ability to translate business growth into Information Technology capacity requirements with forecasts being realistic and achievable
- develop viable enhancement plan taking into consideration implications for resources, finances and staff availability
- install enhancements required for increased measurable performance and assess impact on capacity and performance
- establish performance benchmarks, monitor performance and evaluate performance against benchmarks
- prepare relevant reports and documentation in accordance with requirements
- compliance with all enterprise and Occupational Health and Safety requirements
- perform all tasks in accordance with established protocols, procedures, standards and enterprise policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- modelling
- component performance management
- capacity planning tools
- the role of stakeholders and the degree of stakeholder involvement
- the system's current functionality
- quality assurance practices
- the client business domain
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- installation and monitoring operations
- system performance assessment
- current capacity analysis
- cost-benefit analysis
- project management

Skill
The ability to:

- solve problems
- communicate effectively
- read and interpret technical documentation
- analyse, evaluate and present information
- work in a team
- plan and organise work activities
- facilitate group discussion and gain consensus on issues
- negotiate effectively
- produce reports and technical documentation
- assess current and future capacity requirements of system
- determine capacity problems and develop solutions
- develop and implement enhancement plan
- assess financial and resource requirements

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Underpinning Knowledge and Skills (Cont'd)

Knowledge
Knowledge of:

- risk analysis
- client user requirements
- Service Level Agreements
- fault logging procedures
- capacity enhancement planning
- enhancement strategies
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements

Skill
The ability to:

- perform installation and monitoring activities
- determine system capacity
- establish performance benchmarks
- assess system performance
- provide excellent customer service
- resolve conflicts

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- a live system
- Service Level Agreements and fault logs
- users
- enterprise policies and procedures
- industry standards and codes of practice

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1.	Level 2.	Level 3.
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Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 3	

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ITIGEN3054A: Apply skills in project integration

Competency Descriptor:

This unit deals with the skills and knowledge required to manage the integration of the functions of project management, and making trade-offs among competing objectives and alternatives in order to meet or exceed project objectives throughout the project life cycle, taking into consideration the often conflicting influences of the internal and external environments.

Competency Field: Information and Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Contribute to integration of the functions of project management	1.1	Project stakeholders are identified with the guidance of higher project authorities.
		1.2	The requirements of all project management functions are identified for later determination of achievable project objectives with the guidance of the higher project authorities and other relevant stakeholders.
		1.3	Project sub-plans are collated together for higher project authority review for implementation as the basis for project management.
2.	Contribute to the coordination of internal and external environments	2.1	Information relating to established internal working environment is collected together for higher authority monitoring purposes, to ensure work is conducted effectively throughout the project life cycle.
		2.2	Project objectives are aligned with organisation objectives and documented incrementally for higher authority approval throughout the project life cycle.
3.	Contribute to the support of project activities throughout the life cycle	3.1	Agreed project phases, approval points and review points are documented and distributed to higher authorities, to accommodate all project management functions requirements.
		3.2	Progress reports in relation to established project baselines are distributed to all relevant team members, to provide a measure of performance throughout all phases of the project life cycle.

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3.3 Established finalization plan, procedures and activities are clearly documented and distributed to all team members, to ensure final outcomes of project phases and of the overall project meet agreed project objectives.

3.4 Integration management issues and recommended improvements are identified with other team members, documented and passed on to higher project authority for application in future project.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to applying skills in project integration.

Project objectives may include achievable objectives may be determined, within the constraints of performance, including:

- time
- cost
- quality
- resources
- skill

Project objectives determined from the requirements of:

- the client
- the supplier/contractor
- end user(s)
- higher project authorities

The external environment may include:

- the parent organization
- enterprise
- industry
- unions
- professional associations
- lobby groups;
- political
- social and societal influences
- public and media interest
- the physical environment
- geography
- ecology
- sensitivity
- external stakeholder expectations

The internal environment may include:

- physical location of project
- layout of project personnel and equipment
- personal working conditions
- team dynamics
- identity and differentiation of the project within the larger environment

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Project plan may include:

- single document
- covering document that integrates the requirements of the functions of project management using appropriate formats and procedures
- series of sub-plans

Levels of management may include:

- corporate/enterprise
- business unit
- program/project
- operations/technical

Finalization activities may include:

- transition of responsibility/ownership of project deliverables/products
- transfer of assets to the client or originating owner; warranty requirements
- project evaluation
- final audit/reconciliation
- settling of financial liabilities
- finalization of account codes and other financial documentation
- forwarding finalization report to higher project authority

Enterprise policies and procedures may involve:

- safety requirements
- documentation procedures
- operating procedures
- process governing communication
- use of templates
- privacy and security policies

Integration management issues and recommended improvements may include:

- evaluation of the effectiveness of established success
- evaluation of the effectiveness of established failure criteria
- suggestions for improvement

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to apply skills in project integration in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

- demonstrate knowledge of the project process, relationship between project phases and internal and external environment in which the project is being implemented
- collaboratively determine stakeholders, project management function requirements and achievable project objectives
- source and distribute information, align project objectives with organisational objectives and support monitoring process
- demonstrate the ability to assist maintaining information on the overall project scope in the context of schedules, budgets, risk and contracts towards establishing agreed baselines for supplier/client requirements
- support project activities throughout project lifecycle and conduct assigned tasks to ensure that the final outcomes of project phases and of the overall project meet agreed project objectives
- determine integration management issues and solutions in accordance with project team members
- compliance with all documentation and reporting procedures, enterprise policies and procedures and quality assurance requirements
- perform all tasks in compliance with health and safety requirements and industry standards

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- the project process
- the project life cycle
- the relationship between project phases
- current business practices in relation to preparing reports
- identifying components of the business planning process relevant to the development of Information Technology business solutions
- planning and control procedures
- resource management
- risk management
- a range of suitable methodologies, techniques and tools available to project managers
- internal and external environment factors that may affect the project
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- vendor product directions
- client business domain
- quality assurance practices
- information gathering techniques
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements

Skill
The ability to:

- solve problems
- analyse, evaluate and present information from a variety of sources
- work in a team
- plan and organize activities
- develop plans and procedures
- gather and distribute information
- negotiate effectively
- resolve conflict and gain consensus on issues
- determine objectives
- apply numeracy and literacy skills
- contribute to solutions and goals which achieve specified quality standards
- communicate effectively
- prepare reports and relevant documentation

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- project plan
- enterprise policies and procedures
- industry standards

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(5) Method of Assessment

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Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manage process • Select the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2664A: Design a server

Competency Descriptor: This unit deals with the skills and knowledge required to choose appropriate hardware and software and to design a server.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Choose server application	1.1	Customer requirements are determined through the identification and analysis of business needs.
		1.2	Customer requirements are analysed to identify requirements of server.
		1.3	Available applications and server features are accurately identified.
		1.4	Relevant applications are analysed with reference to identified requirements.
		1.5	Alternate solutions are provided including system and network requirements and cost/benefit analysis in accordance with enterprise policies and procedures.
		1.6	Server application is chosen in accordance with requirements and current and projected processing needs.
2.	Choose network operating system	2.1	Required network operating system (NOS) features are identified with reference to required server solution and chosen application.
		2.2	Available network operating systems (NOSs) are identified based on technical requirements.
		2.3	Relevant network operating systems (NOSs) are analysed with reference to identified requirements and current and projected processing needs.
		2.4	Network operating system (NOS) is chosen based on technical and business requirements.
3	Select server components	3.1	Server components are identified with reference to required application and server features.
		3.2	Product specifications and limitations are accurately identified.

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		3.3	System interdependencies are identified and considered as required.
		3.4	Alternate solutions are provided with reference to required application and sever features including cost/benefit analysis.
		3.5	Server components are selected in accordance with required application and server features.
4.	Design server	4.1	Product and vendor architecture and equipment specifications are revised.
		4.2	Server is designed following the correct procedures.
		4.3	Server design is analysed against customer requirements by use of server selection tools.
		4.4	Changes to design are made as required from the outcomes of the design testing in accordance enterprise guidelines and procedures.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to designing a server.

Server applications may include:

- file sharing
- printer sharing
- messaging
- web services
- network and remote access
- database and data warehousing
- directory services
- management
- line of business applications
- terminal services

Server components may include:

- processors
- memory
- storage solutions
- Random Array of Independent(or Inexpensive) Disks (RAID)
- communication
- chassis design
- power analysis
- server appliances
- hot plug peripherals
- clustering

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Customer requirements may include:

- increase accessibility
- data sharing
- faster communication
- web services
- remote access
- increase throughput

Server design considerations may include:

- reliability
- serviceability
- performance output
- peak load
- availability
- scalability and capacity planning
- administration and manageability
- longevity and headroom
- physical constraints of the facility
- cost
- required and value added features
- component selection

Servers may include:

- BEA Web logic Servers
- Apache HTTP Server
- IBM Visual Age and Web Sphere
- Microsoft-Internet-Information-Server, Microsoft-IIS, Microsoft-IIS-W & Microsoft-PWS
- Windows 2000 Server
- Net Dynamics
- Lotus Domino
- Netscape Enterprise Server, Netscape-Fast Track, Netscape-Commerce
- Sun Micro Systems iPlanet Web Server
- iPlanet-Enterprise
- Sun Micro Systems Java Web Server
- Email Servers
- File & Print Servers
- FTP Servers
- Proxy Servers

Product specifications and limitations may include:

- speed
- integrability with other components
- power requirements
- interoperability with other components
- capacity
- features and capabilities

Network operating system (NOS) features may relate to:

- architecture
- scalability
- availability and reliability
- client support
- functionality (both features and limitations)
- server management
- security
- application development tools
- middleware
- maintenance and cost

Operating systems may include:

- Solaris
- NT
- FreeBSD
- Linux
- Windows 2000
- HP Unix
- AIX
- AS400
- OS/2
- CompacTru64
- MacOS
- Netware
- IRIX

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Capacity sizing tools may include:

- generic benchmarks
- static sizing guides
- software sizing models
- workload testing
- performance monitoring

Cost/benefit analysis may include:

- assessment of return on investment (ROI) in relation to applications
- assessment of total cost of ownership (TCO) in relation to applications

Enterprise policies and procedures may involve:

- safety requirements
- documentation procedures
- operating procedures
- process governing communication
- use of templates
- privacy and security policies

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to design a server in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of features of server applications, network operating system and server components
- determine server requirements, server features and applications and server components in accordance with client requirements and current and future processing requirements
- provide appropriate solutions detailing system and operating system requirements and conduct cost/benefit analyses
- select network operating system, server components and server application through analysis and evaluation of capabilities and technical and business requirements
- demonstrate the ability to select the required hardware and software and design the server based on business and technical requirements
- perform evaluation of server design and make necessary changes
- compliance with all documentation and reporting procedures, enterprise policies and procedures and quality assurance requirements
- perform all tasks in compliance with health and safety requirements and industry standards

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current server applications including:
  - network services
  - databases and data warehousing
  - directory services
  - management
  - business applications
  - terminal services
- single and multiple processors
- memory
- chassis
- disk drives and internal / external storage devices
- load balancers
- power (supply requirements and management, protection – backup / line conditioning / surge suppression, power budgeting)
- hot plug peripherals
- ancillaries
- scaling up and scaling out
- fault tolerant fail over clusters
- the data bus
- memory cache and storage cache
- current storage interfaces
- cost/benefit analysis
- business needs analysis
- network operating systems
- server design
- server hardware and software specifications and limitations
- business modelling
- performance modelling
- product analysis
- capacity sizing
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements

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Underpinning Knowledge and Skills (Cont'd)

Skill
The ability to:

- conduct capacity planning
- conduct performance modelling at the system and component level
- carry out cost/benefit analysis
- design server
- evaluate and select appropriate network operating systems (NOSs)
- conduct product analysis, business modelling and needs analysis in relation to server design
- use capacity sizing tools
- solve problems
- analyse, evaluate and present information
- select server application and components
- work safely

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- server hardware
- requirements documentation
- business planning documentation
- network operating software
- enterprise policies and procedures
- industry standards and codes of practice
- relevant health and safety standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET0764A: Build and configure a server

Competency Descriptor: This unit deals with the skills and knowledge required to build, configure and test a server.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Confirm server specifications	1.1	Network operating system, server application and server design are confirmed with customer in accordance with enterprise policies and procedures.
		1.2	Product and vendor architecture and equipment specifications are identified according to customer requirements.
		1.3	Time, technology and resource constraints are identified against business needs and budget.
		1.4	Detailed task list is created identifying breakdown of the logical stages of work required in accordance with enterprise policies and procedures.
2.	Build server	2.1	Server hardware is sourced as required by server specification and technical requirements.
		2.2	Order and delivery of hardware products is overseen if required.
		2.3	Service providers are identified and co-ordinated as required.
		2.4	Server is built in accordance with server specifications in accordance with enterprise procedures and industry practices.
3.	Configure and test server	3.1	Server is configured as required by technical requirements.
		3.2	Scope and applicability of the test is defined against technical requirements.
		3.3	Test plan is developed with reference to resources and network impact in accordance with enterprise policies and procedures.
		3.4	Test is executed according to test plan.
		3.5	Error report is analysed and changes are made as required.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to building and configuring a server.

Server components may include:

- processors
- memory
- storage solutions
- Random Array of Independent(or Inexpensive) Disks (RAID)
- communication
- chassis design
- power analysis
- server appliances
- hot plug peripherals
- clustering

Type of server may include:

- messaging server
- web server
- database server
- file and print servers
- management and directory servers
- internet connectivity servers
- application servers
- all in-one-systems

Server hardware may include:

- processors
- disk drives and internal external storage devices
- chassis
- load balancers
- power
- hot plug peripherals

Service providers may include:

- vendors
- application systems integrator
- cabling specialists
- contractors

Enterprise policies and procedures may involve:

- safety requirements
- documentation procedures
- operating procedures
- process governing communication
- use of templates
- privacy and security policies

Occupational Health and Safety standards may include:

- organisational requirements
- statutory requirements
- vendor requirements
- ergonomic requirements
- environmental requirements

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to build and configure a server in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of server components and their capabilities and assembly of components to create a server
- interpret, evaluate and analyse information
- accurate determination of server specifications, component specifications and operating environment
- determine business needs and budgetary requirements and identify constraints
- plan and organise work sequence to complete tasks efficiently and
- source and coordinate delivery of required components and services
- determine testing regimes and develop test plan
- communicate effectively with all stakeholders
- demonstrate the ability to build, configure and test a server according to business needs and technical requirements
- make modifications to server after evaluation of test results as required
- perform all tasks in accordance with standard operating procedures and enterprise policies and guidelines
- complete tasks in accordance with quality requirements and industry standards and best practices
- compliance with Occupational Health and Safety requirements and legislative requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- features of a range of hardware components including:
  - single and multiple processors
  - memory (SD and RD RAM, memory leads, bandwidth)
  - chassis (size, thermals, EMI specifications, security, drive bays, cable management, ease of maintenance, LED / LCD panels, aesthetics)
  - disk drives and internal / external storage devices (RAID solutions and functionality, drive formats, backup systems – DAT/DLT/AIT, storage area networks (SANs)
  - load balancers
  - power (supply requirements and management, protection – backup/line conditioning/surge suppression, power budgeting)
  - hot plug peripherals (PCI expansion cards, power supplies, hard drives, fans)
  - ancillaries (racks, keyboard, monitor, cabinets, air flow)
- network operating system
- server application
- server design
- network architecture
- assembly of computer components
- configuration and testing procedures
- use of propriety software
- project management
- vendors and service providers
- development of testing regimes
- stakeholders and their involvement
- enterprise policies and procedures
- industry standards and codes of practice
- Occupational Health and Safety requirements
- quality control
- resource management
- testing methodologies
- product and vendor architecture and equipment specifications

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Underpinning Knowledge and Skills (Cont'd)

Skills
The ability to:

- interpret technical documentation
- evaluate, analyse and communicate information
- determine server specifications and technical requirements
- determine server operating environment
- identify resource constraints
- plan and organise work
- source, evaluate and order server components
- assemble computer components
- solve problems
- communicate effectively
- work safely
- liaison with vendors and service providers
- apply project management skills
- negotiate effectively
- develop and conduct testing regimes

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- documentation specifying network operating system, server application and server design
- customer requirements, budget and business needs documentation
- product and vendor architecture and equipment specifications
- relevant technologies and resources
- enterprise policies and procedures
- industry standards and codes of practice
- relevant health and safety standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1654A: Optimise system performance

Competency Descriptor: This unit deals with the skills and knowledge required to identify areas of poor system performance and take steps to improve performance.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify areas of poor performance	1.1	Fault logs are examined to determine if performance is a problem reported by client users.
		1.2	System utilization, file and disc structure, performance reports and files are analyzed to identify any peak periods or possible performance problems.
		1.3	Response times are reviewed by using benchmark and other performance measurement tools.
		1.4	Network capacity and throughput are investigated using software or hardware tools to monitor performance over a period.
		1.5	Any other technical areas that can be explored to identify bottlenecks are identified.
2.	Investigate methods to improve performance	2.1	System capacity, limitations and findings from performance review activities are reviewed.
		2.2	Options are discussed with system programmer, suppliers, consultants and other technical sources, as applicable.
		2.3	System tools are used to gather additional information that may be required to assist in final determination of problem.
		2.4	Various courses of action designed to reduce performance problems and expected measure of improvement are identified.
		2.5	Method for resolution that is cost effective and provides a timely solution to the problem is identified.

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3.	Tune system and monitor performance	3.1	Any necessary components are obtained, or steps necessary to improve system performance are realised.
		3.2	Components are installed and/or system parameters or configuration are adjusted.
		3.3	Network balance or other hardware configurations are appropriately adjusted.
		3.4	System is monitored and retuned, where applicable, to demonstrate improved performance.
		3.5	System documentation and, if necessary, equipment register are updated to record any changed components in accordance with enterprise policies and procedures.
		3.6	Recommendations are made for prevention or early detection of same or similar performance problems.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to optimise system performance.

Factors affecting system performance may include:

- imbalances in disk utilization and available space
- memory availability and utilization
- processor utilization
- disk speed
- allocation of files across disk space
- number of concurrent users
- work load, physical limitations of system
- poor design in a program/s
- queue depth
- seek time
- input/output (I/O) channel availability

Methods to improve performance may include:

- load balancing
- tuning the disk sub-system
- reducing total load by tuning the operating system
- tuning applications to reduce the load they impose
- using various systems tools to adjust system parameters through to an upgrade (hardware or software)

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Diagnostic tools may include:

- software
- volt meter
- oscilloscope
- data analyzer

Maintenance options may include:

- on-site response
- remote diagnostics
- return to depot
- business hours only support
- through to 24x7 hours support
- telephone support
- second level support

Reporting procedures:

- help desk and maintenance structures will vary
- some may be just a call center or a general contact point, which then calls a supplier or other technician
- others may be staffed by technicians capable of solving the problem
- thus documentation and other procedures will vary
- Systems to monitor change request may be manual or computerized

Tuning and performance can include but not restricted to:

- improvements to response time,
- simultaneous access

Service level agreement details may include:

- workload and performance considerations
- expectations regarding servicing
- penalties
- charge back to business units

Data base optimisation can include but not limited to:

- relationship databases,
- object-relational databases,
- flat file databases,
- proprietary databases,
- off the shelf database packages

Hardware may include:

- Information Technology equipment of all types
- personal computers
- printers
- mid-range systems
- mainframe
- communications equipment

Generally the larger and more expensive the equipment the less likely in-house expertise will be available and the supplier will be relied on for support.

Software and applications may include:

- packaged software,
- in-house development or out-sourced development

The amount of maintenance, change and tailoring that can be undertaken will vary.

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to optimise system performance in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- Assessment must confirm sufficient knowledge system operations and demand times.
- Assessment must confirm the ability to keep the system balanced and performing well. Assessment must confirm the ability to analyse.

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- help desk and maintenance practices in details
- current industry accepted hardware and software products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- role of stakeholders and the degree of stakeholder involvement
- client business domain
- system current functionality
- quality assurance practices
- change management tools
- system performance
- change control procedures
- system under modification
- capacity planning
- context of changes being implemented
- detailed knowledge of the system current functionality
- business scheduling requirements
- diagnostic tools
- industry standards

Skill
The ability to:

- apply problem solving skills
- participate in the development of strategic initiatives
- communicate effectively
- analyse, evaluate and present information
- work in team
- contribute to solutions and goals of a non-routine or contingency nature
- apply group facilitation and presentation skills
- transfer, collect information and gain consensus on concepts
- negotiate skilfully
- produce reports
- apply change management skills
- maintain the continuity of IT operations and business functions
- provide excellent customer service
- handling difficult clients
- resolve conflicts
- analyse training needs

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- poorly performing system
- technical manuals
- dedicated use of system at times
- environment with live or simulated work load
- enterprise policies and procedures
- industry standards and codes of practice
- relevant health and safety standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET2004A: Develop and conduct client acceptance test

Competency Descriptor: This unit deals with the skills and knowledge required to conduct the test processes necessary to ensure that clients will accept the system and development needs to be commenced during the systems requirements phase.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify acceptance criteria and develop test plan	1.1	Mandatory system objectives and optional criteria/conditions for acceptance of system are reviewed through system requirements documentation and project plans.
		1.2	Information compilation and distribution to involved parties is managed according to project procedures.
		1.3	Test plan based on mandatory criteria/ conditions, system objectives and requirements is reviewed and validated.
		1.4	Test plan is clearly and coherently communicated to client and client prepared for acceptance test.
		1.5	Operations are notified of scheduled acceptance test.
2.	Perform functional testing on software modules	2.1	Test environment is prepared for client use.
		2.2	Testing is carried out according to test plan and documentation.
		2.3	Client is guided to execute each test cycle.
		2.4	Document any errors, difficulties or communicated problems.

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3.	Validate test results against expected results	3.1	All discrepancies and corrections are recorded and investigated according to project procedures and timeframe.
		3.2	Test phases are confirmed with client to ensure client understanding of test sequences.
		3.3	System performance is monitored as required.
		3.4	Code changes and any required tuning or modifications are rescheduled.
4.	Sign off and acceptance obtained	4.1	Successful test is confirmed with client.
		4.2	Client concerns over system operation are identified and are documented, possible solutions are identified, and appropriate development staffs are notified.
		4.3	Client acceptance and sign off is obtained.
		4.4	Any rescheduled maintenance is agreed to and is formalised by all parties.

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RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to develop and conduct client acceptance test.

Test plans will generally contain information on:

- Test Items
- Tested Features
- Features Not Tested (per cycle)
- Testing Strategy and Approach
- Syntax
- Description of Functionality – Functional testing
- Interface testing
- Acceptance testing
- Arguments for tests
- Expected Output
- Specific Exclusions
- Dependencies
- Test Case Success/Failure Criteria
- Pass/Fail Criteria for the Complete Test Cycle
- Entrance Criteria/Exit Criteria
- Test Suspension Criteria and Resumption Requirements
- Test Deliverables/Status Communications Vehicles
- Testing Tasks
- Hardware and Software Requirements
- Error management and configuration management
- Staffing and Training Needs/Assignments
- Test Schedules
- Risks, Assumptions and Contingencies
- Approvals

The candidate must be able to understand the functionality being tested and the conditions under which these tests are to be performed.

Software metrics relates to:

- size of each development work package
- milestones is a variable determined by the sponsor, project manager, development team

Testing Method:

- the method of testing (bottom up versus top down) will have an impact on the running sequence of the tests
- it should also be mentioned that Top Down testing would allow the user representatives to become involved at an earlier stage in the testing process

Client standards:

- users should check that the test plan covers all conditions that are important to the business
- Information systems personnel need to check for completeness in testing the program specifications

Acceptance criteria:

- typically formulated on a project-by-project basis
- includes but not restricted to business rules and requirements, performance, operational considerations, compliance with user functional specifications

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Documentation and reporting:

- documentation for version control may follow ISO standards
- audit trails, naming standards, version control, project management templates and report writing styles will vary according to organisational approach
- information gathering processes may have associated templates

Test environment:

- typically a stand-alone, mock environment (that duplicates the production environment) involving key system components where rigorous testing can be performed without affecting the business

Technical components of test environment will vary from project to project. For this reason, functional changes should not be made within the acceptance test. The test is either accepted or rejected. If rejected, changes are made within the development environment then another test is rescheduled.

Test tools:

There are many testing and test management tools available. The following list covers a number of industry tools currently available:

- Code/ unit/ class testing
- Assert Mate
- Bounds Checker
- C-Cover
- Code Review
- Code Wizard
- Deep Cover
- Failsafe
- Hindsight
- Insure++
- JCAST
- Log scope
- JavaPureCheck

OH and S Standards may include:

- company requirements
- statutory requirements
- vendor requirements

Ergonomic and environmental factors must be considered during the demonstration of this competency.

Stress load testing:

- Automated Test Facilities
- e-Load
- E-TEST Suite
- e-MONITOR
- Astra Site Manager
- Astra Site Test
- Auto Tester Web
- Load Runner
- Java Load

Applications testing:

- Data Shark
- Cyrano Suite
- Datatect
- preVue-C/S

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to develop and conduct client acceptance test in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

Assessment must confirm ability to review test plan documentation and ensure all client acceptance requirements will be explicitly and accurately tested to predetermined standards of consistent performance.

The candidate will need to ensure that:

- The system operates in the manner expected.
- Any supporting material such as procedures, forms etc. are accurate and suitable for the purpose intended.
- There are no gaps in functionality.
- Individual elements and the overall system provide the desired result or functionality.
- Unit and suite user documentation is available and accurate.
- The user accepted code is copied correctly to the live area. Version numbers are correct and the code is operational.

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- system/application being tested
- testing techniques with detailed knowledge of features and processes in some areas
- automated test tools with detailed knowledge of features and processes in some areas
- client user requirements
- acceptance criteria
- testing plan developed
- project planning and management
- business rules and standards
- system requirements documentation and project plans
- OHS requirements in relation to work safety, environmental factors and ergonomic considerations

Skill
The ability to:

- solve problem
- participate in the development of strategic initiatives
- identify client concerns over system operation
- develop possible solutions for clients concerns
- work with appropriate development staff
- analyse, evaluate and present information
- communicate test plan clearly and coherently to client
- apply data analysis skills
- review mandatory system objectives and optional criteria/conditions for acceptance of system
- ensure client understanding of test sequences
- apply project planning skills in relation to scope, time, cost, quality, communications and risk management
- negotiate effectively

(4) Resource Implications

To demonstrate this unit of competence the candidate will require access to documents detailing:

- business requirements
- project documentation including templates, standards, specifications, client user and technical manuals
- test plan
- acceptance criteria

The candidate will need access to:

- technical components of system, including software, hardware, network
- staffing resources including development, operations, client user representatives (in a simulation, the trainer /assessor may take on some of these roles)
- organisational policies and procedures
- industry standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Client user acceptance is a phase within the overall development life cycle of a system. Client acceptance testing usually occurs during the implementation phase, but planning and preparation should begin in the design phase, and run concurrently (design/code/implementation)

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2184A: Design system security and controls

Competency Descriptor: This unit deals with the skills and knowledge required develop the controls that should be designed in the system to ensure the system is secure from both a legal and business perspective.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Review audit needs	1.1 Security requirements that have been evaluated to date are reviewed and their appropriateness is discussed with auditors.
	1.2 Designs and security requirements are discussed with auditors.
	1.3 Audit trails are agreed with auditors and any user needs are incorporated in accordance with business requirements and enterprise policies and procedures.
2. Identify appropriate controls	2.1 Control philosophies and methods that are available to be used in the system are reviewed.
	2.2 Module and system-wide controls are reviewed against client requirements and security requirements.
	2.3 Significant error handling is catered for according to security requirements and critical business functions acceptance criteria.
	2.4 Time and event criteria are established in accordance with industry best practices.
	2.5 Controls that will solve security and risk issues are documented and are presented to senior management and auditors for approval in accordance with enterprise policies and procedures.
3. Design controls to be incorporated in system	3.1 Methods by which the controls will be implemented into the system design are incorporated into the design document.
	3.2 Controls which are to be built into the system under development are identified and those which are environmental or operating system based are identified.

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3.3 User access security provisions are documented by user classification to be applied at program, record or field level and procedures for controlling the security provisions are checked according to client requirements.

3.4 Senior management and auditor approval is obtained for the design of the controls in accordance with enterprise policies and procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to designing system security and controls.

The security environment includes:

- all the laws relating to security
- organisational security policies
- relevant customs
- expertise and knowledge
- threats to security which are, or are held to be, present in the environment

Security threats may include:

- eavesdropping
- manipulation
- impersonation
- penetration
- by-pass

Business security requirements may include:

- back-up
- storage and recovery of data
- access to internal network
- passwords/logons
- firewalls
- hacking
- confidentiality
- integrity
- availability

Security policies may cover:

- theft
- viruses
- standards (including archival, back-up, network) privacy
- audits
- alerts
- security objectives of the organisation

Confidentiality covers:

- unauthorised reads of data including data in storage, during processing, and while in transit
- unauthorised dissemination of data
- unauthorised copying of data
- unauthorised retrieval of data

Integrity relates to:

- data integrity
- integrity of data during storage
- integrity of data during processing
- integrity of data while in transit
- system integrity

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Physical aspect of security may include:

- the system and its location
- employing wide area networks
- access by people other than employees
- installing the system in an intrinsically secure building

Technical aspects of security may include:

- hardware used
- ducting of cabling
- external cabling requirements
- internal cabling requirements

Security standards may include:

- information processing - Documentation symbols and conventions for data, program and system flowcharts, program network charts and systems resources charts
- information processing - Guidelines for the documentation of computer-based application systems
- information processing - User documentation and cover information for consumer software packages
- guide to the development of application software - On-screen documentation

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

Security operating procedures may include:

- handling of security internal breaches
- responding to customer requirements for security
- frequency and nature of archives and back-ups alerts
- audits
- review and test

Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory regulations
- industry requirements
- ergonomic requirements

Security strategies may cover:

- privacy
- authentication
- authorisation
- integrity
- confidentiality

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to design system security and controls in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate sufficient knowledge of security products, security control philosophies and methods and enterprise security policy and strategies
- determine security requirements, user needs and security risk issues
- collaboratively review audit needs and identify and design appropriate controls
- establish time and event criteria, solution to security and risk issues and user access security provisions
- demonstrate the ability to establish realistic ground rules for security product procedures
- develop security design which covers resilience of the system to security breaches, layered security and levels of security across system
- design also effectively deals with risk management in relation to overall system, ease of implementation of security controls and upgrade/scalability of system and security controls
- communicate with relevant parties and gain approval on audit trails, design of controls and security solutions
- produce relevant documentation and reports in accordance with enterprise policies and procedures
- compliance with all Occupational Health and Safety, enterprise and industry standards and requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- appropriate security controls
- client business domain, business function and organisation
- evaluation of and reviewing audit needs
- privacy issues and legislation
- ethics in Information Technology sector
- risk analysis
- data and system integrity
- designing controls to be incorporated in system
- specific security technology
- components of security environment
- security threats
- security strategies and policies
- security and risk issues
- control philosophies and methods
- audit trails
- user access security provisions
- client user business security requirements
- quality standards
- security standards
- enterprise policies and procedures
- Occupational Health and Safety requirements

Skills
The ability to:

- solve problems
- evaluate and review audit needs
- produce relevant reports and documentation
- read and interpret technical document
- assess security threats
- analyse risk
- establish procedures and policies
- establish time and event criteria
- communicate effectively
- analyse, evaluate and present information
- design appropriate controls
- facilitate discussions and gain consensus on issues
- evaluate security policies and procedures

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- risks to the mission/business resulting from IT-related risks,
- the probability, frequency, and severity of direct and indirect harm, loss, or misuse of the Information Technology system
- the security environment relating to relevant laws/legislation, existing enterprise security policies, enterprise expertise and knowledge that may be relevant and the threats to security which are, or are held to be, present in the environment
- risk analysis tools /methodologies
- Information Technology security assurance specifications

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
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Use technology	Level 3	

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ITINET1254A: Build an Internet infrastructure

Competency Descriptor: This unit deals with the skills and knowledge required to design and implement an Internet to provide services to client users.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Plan and design an Internet to meet business requirements	1.1	Client user requirements that can be satisfied by the use of an Internet are evaluated.
		1.2	Internet specifications are produced to meet client user requirements and budget constraints.
		1.3	Internet hardware, software, network and security requirements are designed.
		1.4	Plans for the sourcing and for the implementation of Internet technologies are developed.
		1.5	Internet Service Provider (ISP) requirements are determined and best ISP option and class address is identified.
2.	Install and configure Internet infrastructure to meet business requirements	2.1	Server hardware and software are installed and configured.
		2.2	Networking components are installed where necessary.
		2.3	Workstation and client hardware and software are installed to be able to access services.
		2.4	Necessary hardware and software required to connect the Internet to intranets or networks are installed if required.
		2.5	Domain names and Internet Protocol (IP) addresses are configured to facilitate intranet and Internet access.

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3.	Install and configure Internet services to meet business requirements	3.1	Software is installed and configured to provide editing, storage and retrieval of Hyper Text Mark-up Language (HTML) documents.
		3.2	Software is set up to provide services as required including news groups, E-mail, File transfer Protocol (FTP) facilities, multimedia, conferencing, etc.
		3.3	Software that provides Internet links with existing databases, documents, files, etc. is installed and configured.
		3.4	Templates and style guides are developed for Internet documents.
		3.5	Security and access levels are configured to safeguard data making use of appropriate tools and techniques such as fire-walls, encryption, etc.
4.	Monitor security and Internet access	4.1	Security and access levels are monitored to safeguard data making use of appropriate tools and techniques.
		4.2	Viability and reliability of security techniques are monitored and evaluated, such as fire walls, encryption, alerts, etc.
		4.3	Up to date information is maintained through industry sources on general security breaches, new viruses and changes in security technologies
5.	Ensure user accounts controlled	5.1	Default user settings are modified to ensure that they match security policies.
		5.2	Previously created user settings with more relaxed security are modified according to security and access policies.
		5.3	Appropriateness of legal notices displayed at log on is ensured.
		5.4	Appropriate utilities are used to check strength of passwords used.
		5.5	Procedures are reviewed to ensure that users who leave have their accounts disabled or deleted.
		5.6	Information services through the Internet are accessed to identify well-known and up to date security gaps and these are plugged with appropriate hardware and/or software.

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6.	Manage and support the Internet	6.1	Policies and procedures are developed to be implemented and used in managing currency of information and updating the Internet.
		6.2	Management tools to assist in Internet administration are obtained, are installed and are used.
		6.3	Traffic, appropriateness of broadcasts and hits over the Internet are monitored.
		6.4	Logs and other reports required to manage and support the Internet are created.
		6.5	Internet performance is fine tuned and is optimised.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to building an Internet infrastructure.

Network may include but not restricted to:

- large and small Local Area Networks (LANs)
- national Wide Area Networks (WANs)
- the use of the Public Switched Telephone Network (PSTN) for dial up modems only
- private lines
- data and voice

Documentation and reporting may include:

- maintaining standards of definition
- standards of format
- user access information

Information should be clear and written in such a way that it will be readily understood by the target audience.

Reports meet the specific output requirements and are presented in a logical and accessible manner.

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Operating systems may include:

- Win 95/98/NT/2000/XP
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC VMS
- Mac OSX
- Linux
- NetWare

Each product will have different functionality and ways of operating. Internet services may be built in or optional extra. In addition third party products may also be used in the Internet.

OH and S Standards may include:

- company requirements
- statutory requirements
- vendor requirements

Ergonomic and environmental factors must be considered during the demonstration of this competency.

Organisational standards may be:

- based upon formal, well documented methodologies
- non-existent

For training delivery purposes best practice examples from industry will be used

Servers may include:

- Application/web servers; BEA Web logic Servers, IBM Visual Age and Web Sphere, Microsoft Host Integration Server, Net Dynamics, Netscape Application Server
- Email Servers;
- File & Print Servers;
- FTP Servers;
- Proxy Servers

Software:

- most likely to be packaged software but can be supplied from many varying vendors and can include full suites or individual components

Internet requirements may range from:

- simple sharing of HTML documents
- to comprehensive e-commerce sites with Internet and other external connections

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Hardware may include IT equipment of all types:

- Workstations, PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems
- Bridges, 3Com, Compaq, CISCO, IBM
- modems, analog, cable, ISDN, DSL
- servers, Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards, Adaptec, ARTIC, Compex, SMC
- multilayer switching, switches, 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters, 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways, 3Com, CISCO, D-Link, Intel,
- File & print servers, AcerAltos, Aerocomm, Alpha Server, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems,

Generally the larger and more expensive the equipment, the less likely in-house expertise will be available and the supplier will be relied on for support.

Routing may include:

- static routers
- dynamic routers

Router protocols:

- Hot Standby Router Protocol (HSRP)
- Border Gateway Protocol (BGP)
- Cisco Discovery Protocol (CDP)
- (Enhanced) Interior Gateway Routing Protocol
- Routing Information Protocol
- NetWare Link State Protocol
- Open Shortest-Path First Interior Gateway Protocol

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EVIDENCE GUIDE

Competency is to be demonstrated by effectively building an Internet infrastructure in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- assessment must confirm knowledge of Internet technologies and how the technology is installed, configured and used
- planning and designing system to meet requirements
- correct use of appropriate technology, procedures and tools
- assessment must confirm the ability to develop an Internet infrastructure and to maintain a viable and reliable security systems
- monitoring and administering use of Internet
- developing and conducting appropriate support functions
- compliance with organisational and industry standards, policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- client business domain, business function and organisation
- client user requirements
- Internet infrastructure
- Internet protocols
- network structure
- network communication devices
- network planning and design
- network security
- network administration
- network management tools
- host system
- networking technologies with broad knowledge of general features and capabilities
- supporting documentation systems
- network reporting and administration procedures
- enterprise policies and procedures
- manufacturers' specifications
- installation and configuration procedures
- Occupational Health and Safety requirements
- Industry standards and codes of practice

Skills
The ability to:

- determine business requirements
- read and interpret technical documentation
- communicate effectively
- solve problems
- establish procedures and guidelines
- build network infrastructure
- analyse, evaluate and present information
- produce reports and documentations
- apply installation and configuration procedures
- integrate and manage network resources
- manage and monitor network security
- conduct network support and administration
- work safely
- provide instructions
- apply questioning and active listening skills
- apply project planning skills in relation to scope, time, cost, quality, communications and risk management

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant tools and technology
- business requirements
- relevant hardware and software
- organisational policies and procedures
- industry standards

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(5) Method of Assessment

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Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

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Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
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Solve problems	Level 3	
Use technology	Level 3	

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ITINET1614A: Manage and review delivery of maintenance services

Competency Descriptor: This unit deals with the skills and knowledge required to manage and review the delivery of maintenance services.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Identify appropriate service levels	1.1 Fault reporting and restoration standards and procedures are identified against service level agreements to ensure they meet requirements.
	1.2 System availability standards and procedures are reviewed against service level agreement to ensure they meet requirements.
	1.3 Response times are monitored against service level agreement to ensure they meet requirements.
	1.4 Hours of coverage are determined from business work demands and service level agreements.
	1.5 Critical areas of support are identified and monitored to determine appropriate service level agreements.
	1.6 Penalty areas, where appropriate are identified and monitored.
	1.7 Nature of maintenance support is checked against service level agreements to ensure they meet requirements.
	1.8 Scheduling of maintenance activities against business requirements is monitored and reviewed.
	1.9 Reporting and feedback requirements are assessed for suitability and timeliness.

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2.	Confirm that infrastructure can deliver required service levels	2.1	Personnel and skill requirements are reviewed to ensure that they meet internal service and control requirements.
		2.2	Internal support and maintenance processes are detailed and documented against service requirements.
		2.3	Spares and tools requirements are determined in order to provide the appropriate level of service and response.
		2.4	All purchasing and storage is checked to comply with company preferred purchasing/ storage arrangements.
		2.5	Internal reporting and measurement mechanisms are established and monitored to ensure that escalation procedures can be actioned.
		2.6	Gaps in existing service and maintenance infrastructure are prioritised and corrected according to business requirements and business critical functions.
3.	Monitor performance against agreement	3.1	Measurement reports are reviewed and analysed on a regular basis.
		3.2	Deficiencies and impact on service level agreements of service are identified.
		3.3	Means to correct in a cost-effective manner are identified, or changes to the Service Level Agreement are made.
		3.4	Recommendations are implemented in a timely manner, and all stakeholders are informed of the changes and are aware of the impact of the changes.
4.	Regularly review agreement and performance with client	4.1	Regular reports to client users and stakeholders are prepared according to agreement.
		4.2	Reports are reviewed with client using plain English so client users will comprehend the information and feedback.
		4.3	Findings and action items are recorded, and next steps and changes to be made are agreed to.

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RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to managing and reviewing delivery of maintenance services.

Service level agreements:

- Service Level Agreements (SLA) exists for many different infrastructure services including communications carriers, ISPs, ASPs and SLAs for vendor products.
- SLAs should consider business processes and requirements, clearly specify and quantify service levels, identify evaluation or audit of service levels.

SLA may include:

- workload and performance considerations
- expectations regarding servicing
- penalties
- charge back to business units

Maintenance options can include:

- on-site response
- remote diagnostics
- return to depot
- on-line real-time support
- web based support
- business hours only support
- 24x7 hours support
- telephone support
- second level support

Software and applications may include:

- packaged software
- in-house development
- out-sourced development

Reporting procedures may include:

- help desk and maintenance structures will vary
- some may be a call centre or a general contact point, which then calls a supplier or other technician
- others may be staffed by technicians capable of solving the problem

Thus documentation and other procedures will vary. Systems to monitor change request may be manual or organisation.

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Documentation and reporting:

- documentation for version control may follow ISO standards
- audit trails, naming standards, version control, project management templates and report writing styles will vary according to organisational approach
- information gathering processes may have associated templates

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to manage and review delivery of maintenance services in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- assessment must confirm sufficient knowledge of compliance with service level agreement
- assessment must confirm the ability to critically analyse and priorities requests according to business requirements
- delivery of support to established levels
- planning and organising relevant mechanism to deliver support required
- managing delivery of support
- conformance with organisational and industry standards, policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- help desk and maintenance practices in details
- current industry accepted hardware and software products with broad knowledge of general features and capabilities and detailed knowledge in some areas
- role of stakeholders and the degree of stakeholder involvement
- client business domain
- system current functionality
- quality assurance practices
- change management tools
- system performance
- change control procedures
- system under modification
- capacity planning
- context of changes being implemented
- business scheduling requirements
- diagnostic tools
- industry standards
- the role of stakeholders and the degree of stakeholder involvement
- business scheduling requirements

Skill
The ability to:

- apply problem solving skills
- participate in the development of strategic initiatives
- communicate effectively
- analyse, evaluate and present information
- work in team
- contribute to solutions and goals of a non-routine or contingency nature
- apply group facilitation and presentation skills
- negotiate skilfully
- produce reports
- apply change management skills
- maintain the continuity of IT operations and business functions
- provide excellent customer service
- handling difficult clients
- resolve conflicts
- analyse training needs
- review change procedures
- risk analyse risks

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- clients wishing to define and review a service level agreement
- established IT service infrastructure
- reports measuring performance against agreement
- organisational policies and procedures
- industry standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Competence in this unit needs to be assessed using formative assessment to ensure consistency of performance in a range of contexts. Simulated activities must closely reflect the workplace and may need to take place over a period of time to allow the candidate to address the ongoing monitoring aspects of this unit.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIGEN3074A: Manage procurement

Competency Descriptor: This unit deals with the skills and knowledge required to undertake procurement and contract management for projects/activities. It covers planning procurement requirements, establishing procurement processes, managing procurement processes, managing and finalisation contracts.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Plan procurement	1.1	Product specifications and procurement requirements are identified, analysed and prioritised, in consultation with appropriate stakeholders, as the basis for procurement planning and the contract.
		1.2	Procurement strategies, methods and management plans are developed, agreed and managed to reflect agreed changes to project objectives throughout project/activity life cycle.
		1.3	Involvement by HR is ensured when procuring human resources.
2.	Establish procurement processes	2.1	Potential sources capable of fulfilling procurement requirements are identified and evaluated to determine the extent to which project objectives can be met.
		2.2	Selection processes and selection criteria are determined in consultation with stake holders and communicated to prospective contractors to ensure fair competition.
		2.3	Higher authority endorsements are obtained when necessary to ensure procurement actions accord with organisation and project objectives.
3.	Manage procurement process	3.1	Proposals are developed, agreed, and communicated to prospective contractors to ensure clarity of understanding of project objectives, responsibilities and methods of achievement.
		3.2	Responses are evaluated and preferred contractors are selected in accordance with agreed selection processes.

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		3.3 Contract terms and conditions are negotiated between client and preferred contractor to agree common goals and to minimise uncertainty.
4.	Manage contract	4.1 Procurement activities are managed in accordance with agreed contract and procurement management plans to ensure common approach to achievement of objectives.
		4.2 Progress is reviewed, variance is analysed and agreed changes are implemented to ensure project objectives are met within the legal framework of the contract.
		4.3 Potential, perceived and actual contractual conflicts are identified and remedial actions are implemented to minimise disruption to achievement of contract and project objectives.
5.	Finalise contracts	5.1 Finalisation activities are managed to ensure quality of, and responsibility for contract deliverables accords with contractual and project requirements.
		5.2 Project outcomes are reviewed and analysed to determine the effectiveness of procurement processes and procedures.
		5.3 Lessons learnt are passed to higher authority and feedback is provided for application in planning and implementation of later projects/activities.

RANGE STATEMENTS

Range Statement adds definition to the unit by elaborating critical or significant aspects of the performance requirements of the unit. The Range Statement establishes the range of indicative meanings or applications of these requirements in different operating contexts and conditions. The specific aspects which require elaboration are identified by the use of italics in the Performance Criteria.

Procurement records and information may include:

- product specifications
- procurement management plan
- contract documentation
- contractor selection criteria, processes and recommendations
- contract negotiation documentation
- contract change proposals and approvals
- test and acceptance procedures and documentation
- contract discharge and asset disposal register

Modifications may be made:

- independently or with higher project authority endorsement if necessary
- regularly throughout the project life cycle
- in consultation with project team members, section heads, project manager and stakeholders
- taking into account internal organisational change and external environmental change

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Legislation, codes and national standards relevant to the workplace which may include:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety (OHS)and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

A procurement management plan identifies and outlines:

- procurement objectives, strategies and timelines
- resources to be obtained against a timeline and budget
- processes to be used for procurement of resources
- responsibilities for staff/team members
- how procurement arrangements are communicated to stakeholders
- the process for monitoring and evaluating procurement related to the project

Delegated authority refers to planning and activities that may:

- be done independently within broad guidance or by taking the lead of a team
- involve consultation with other project members, teams and internal stakeholders
- involve the selection, use and supervision of appropriate procurement management methods, tools and techniques
- be conducted routinely or as changing circumstances dictate
- take into account internal organisational change and external environmental change

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EVIDENCE GUIDE

The Evidence Guide provides advice to inform and support appropriate assessment of this unit. It contains an overview of the assessment requirements followed by identification of specific aspects of evidence that will need to be addressed in determining competence.

The Evidence Guide is an integral part of the unit and should be read and interpreted in conjunction with the other components of competency. Assessment must reflect the endorsed Assessment Guidelines

(1) Critical Aspects and Evidence

A person who demonstrates competence in this unit must be able to provide evidence that they have taken responsibility within projects for procurement and contract management. This will include evidence of managing the work of others within the project team with respect to procurement and contract management.

Substantiating evidence may be in the form of documentation produced in managing project procurement, including:

- prepared product specifications
- procurement management plans and/or contract documentation
- records of evaluation and selection of preferred contractors
- records of progress measurement and conflict resolution process
- records of test and acceptance procedures and documentation

(2) Pre-requisite Relationship of Units

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- the principles of procurement management and their application
- the principles of contracts and contractual legal requirements from the project management perspective
- the selection of appropriate formal arrangements and the legal implications of such agreements
- contract negotiation
- contract law
- procurement guidelines
- procurement management processes and procedures
- OHS legislative requirements

Skill
The ability to:

- relate to people from a range of social, cultural and ethnic backgrounds, and physical and mental abilities
- manage projects
- manage contracts
- plan and organise
- apply communication and negotiation skills
- problem solve
- provide leadership and personnel management skills
- negotiate
- monitor and review skills
- pay attention to detail
- maintain an overview
- be thoroughness
- provide positive leadership

(4) Resource Implications

Access to workplace documentation

The following resources should be made available:

- workplace (actual enterprise or simulated)
- project/activity plans
- workplace documentation
- procurement guidelines
- legal counsel
- enterprise policies and procedures
- industry standards and codes of practice
- relevant health and safety standards

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(5) Method of Assessment

Assessment methods suitable for valid and reliable assessment of this competency may include, but are not limited to:

- case studies
- demonstration
- portfolios
- questioning
- scenarios
- authenticated evidence from the workplace and/or training courses

(6) Context of Assessment

Evidence must be gathered over time in a range of contexts to ensure the person can achieve the unit outcome and apply the competency in different situations or environments.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIGEN3094A: Manage cost

Competency Descriptor: This unit deals with the skills and knowledge required to identify, analyse and refine costs to produce a budget for controlling overall cost of project/activity.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Develop size estimate	1.1 Relevant historical data is analysed to determine size of project/activity.
	1.2 Size estimates are generated using a size model.
	1.3 Cost estimates are determined by use of size model.
2. Determine project costs	2.1 Resource requirements for individual tasks and size requirements are determined, with input from stakeholders and guidance of higher project authorities.
	2.2 Project costs are estimated to enable budgets and cost management processes to be developed at an appropriate level throughout the project/activity life cycle.
	2.3 Cost strategies and cost management plans are developed communicated and are implemented to ensure clarity of understanding and ongoing management of project/activity finances.
3. Manage project/activity costs	3.1 Cost management systems are developed and maintained to monitor actual expenditure and to control costs throughout the project/activity life cycle.
	3.2 Analysis is conducted, options are evaluated and responses to cost variations are implemented to maintain control over changing financial and overall project/activity objectives throughout the project/activity life cycle.
	3.3 Internal and external influences on project/activity costs are monitored to forecast, and if necessary, seek approval from higher project authority for, major changes to approved project/activity budget.

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4.	Manage financial completion	4.1	Finalisation activities are managed to achieve integrated financial and physical project/activity completion.
		4.2	Project/activity outcomes are reviewed and are analysed to determine the effectiveness of cost management systems.
		4.3	Lessons learnt are passed to higher authority and feedback is provided for application in planning and implementation of later projects/activities.

RANGE STATEMENT

The Range Statement adds definition to the unit by elaborating critical or significant aspects of the performance requirements of the unit. The Range Statement establishes the range of indicative meanings or applications of these requirements in different operating contexts and conditions.

Legislation, codes and national standards relevant to the workplace which may include**:**

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to occupational health and safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

Delegated authority means that activities will:

- be done independently within broad guidance or by taking the lead of a team
- involve consultation with other project members, teams and internal stakeholders
- involve the selection, use and supervision of appropriate time management methods, tools and techniques
- be conducted routinely or as changing circumstances dictate
- take into account internal organisational change and external environmental change

Accuracy of cost estimates may take account of:

- the stage of the project life cycle
- the availability of information at the time
- contingency to allow for identified risks and uncertainty
- overhead and profit margin
- government regulations/ industry codes of practice /organisational influences

Finalisation activities may include:

- transition of responsibility/ownership of project deliverables/products
- transfer of assets to the client or originating owner
- warranty requirements
- final audit/reconciliation
- settling of financial liabilities
- close-out of account codes and other financial documentation

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The individual may be responsible and accountable for the outcome of cost management activities throughout the project life cycle which may:

- be done independently or by taking the lead in a team environment
- involve consultation with and selective involvement of appropriate project stakeholders
- involve the selection, modification and supervision of the use of appropriate time management methods, processes, procedures, tools and techniques
- be conducted substantially non-routinely to meet complex, changing circumstances
- take into account the impact of organisational and environmental change on the project and vice versa

Cost management may require:

- the application of personal judgement
- the modification of methodologies and procedures
- the direction of subject matter experts and others to manage routine and non-routine activities such as: cost modelling and estimating; financial analysis, eg benefit-cost analysis, cash flow analysis, earned value analysis; obligation and expenditure forecasting and long term planning; obtaining and revising financial delegations and authorisations; progress and financial change management

Financial management processes and procedures may include:

- approval processes
- financial authorisations/delegations
- invoice procedures
- communication and reporting processes

Review may include evaluations of:

- agreed major milestones, for example phases and sub-contracts
- delivery of major deliverables
- change of key personnel
- finalisation of project and other agreed milestones

Records may include:

- lists of potential costs
- invoice and payment summaries
- budgets, commitment and expenditure
- cost management plans
- reports to a higher authority
- recommended and approved courses of action
- project and/or organisation files and records
- cost management lessons learned

Other personnel may include:

- program manager
- higher project authority
- team members
- project specialists or other personnel

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EVIDENCE GUIDE

The Evidence Guide provides advice to inform and support appropriate assessment of this unit. It contains an overview of the assessment requirements followed by identification of specific aspects of evidence that will need to be addressed in determining competence. The Evidence Guide is an integral part of the unit and should be read and interpreted in conjunction with the other components of competency. Assessment must reflect the endorsed Assessment Guidelines.

(1) Critical Aspects of Evidence

A person who demonstrates competence in this unit must be able to provide evidence that they have taken responsibility within projects/activities for cost of the projects. This will include evidence of managing the work of others within the project team with respect to cost management of the project.

Substantiating evidence may be in the form of documentation produced in managing project costs:

- cost estimates
- cost management plans and strategies
- cost breakdown structures
- project budgets and expenditure forecasts
- financial transition plans
- records of project finalisation activities and disposal of project assets
- project finalisation reports
- records of cost management lessons learned

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- the need to link time, cost and resources to the project/activity framework
- acceptance of responsibilities for cost management
- development of project/activity budgets and expenditure forecasts
- use of the budgets and expenditure forecasts as control mechanisms
- the place of cost management in the context of the project/activity life cycle and other project management functions
- appropriate cost management methodologies, their capabilities, limitations, application and outcomes

Skills
The ability to:

- relate to people from a range of social, cultural and ethnic backgrounds, and physical and mental abilities
- apply project management techniques
- apply project planning and organising skills
- apply communication and negotiation skills
- apply problem-solving skills
- apply leadership and personnel management skills
- apply monitoring and review skills
- demonstrate attributes relating analytical, maintain an overview , communicative, positive leadership

(4) Resource Implications includes

The following resources should be made available:

- workplace (actual enterprise or simulated)
- workplace documentation
- budgeting system
- project/activity plan
- enterprise policies and procedures
- industry standards and codes of practice
- relevant health and safety standards

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(5) Method of Assessment

Assessment of this competency is most likely to be project related under real or simulated conditions and require portfolios or other forms of indirect evidence of process. Direct evidence may include certification of compliance on the final outcome or authorisation for commencement by a competent authority.

Evidence could include examples of projects where the candidate has managed costs within projects, (bearing in mind project team members may contribute to several projects simultaneously, and also may be a permanent team member for one project for an extended period).

Assessment must confirm the inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.

(6) Context of Assessment

For valid and reliable assessment of this unit, the competency should be demonstrated over a period of time and observed by the assessor.

The competency is to be demonstrated in a range of situations, which may include involvement in related activities normally experienced in the workplace.

Evidence of underpinning knowledge understanding of processes and principles can be gained through thorough questioning and by observation of previous work.

Products that could be used as evidence include documentation produced in managing project costs and includes:

- cost estimates
- cost management plans and strategies
- cost breakdown structures
- project budgets and expenditure forecasts
- financial transition plans
- records of project finalisation activities and disposal of project assets
- project finalisation reports
- records of cost management lessons learned

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Processes that could be used as evidence include:

- how resource requirements were determined
- how cost management plans were developed
- how team members were managed throughout projects with respect to the costs of the project
- how problems and issues with respect to costs were identified and addressed
- how projects were reviewed with respect to costs
- how cost management improvements were actioned

CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
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Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITICSS3421A: Install simple power circuit

Competency Descriptor:

This unit deals with the skills and knowledge required to install, terminate and connect simple power circuit.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare for work	1.1 Work is planned and prepared to ensure procedures are followed and the work is appropriately sequenced in accordance with requirements.
	1.2 Condition and ratings under which the circuit is to operate is determined from requirements and in consultation with appropriate personnel followed by written instruction.
	1.3 Cables and electrical accessories are selected to comply with standards and requirements for the condition and determined rating.
	1.4 Materials necessary to complete the work are obtained in accordance with established procedures and checked against job requirements.
	1.5 Tools, equipment and testing devices needed to carry out the work are obtained in accordance with established procedures and checked for correct operation and safety.
	1.6 Potential safety hazards/risks are identified and prevention and/or control measures are employed in accordance with health and safety requirements.
	1.7 Occupational health and safety requirements include use of personal protective gear are identified and followed and a clean and safe work environment is maintained.
2. Install electrical wiring and accessories	2.1 Electrical wiring and accessories are inspected and tested for faults and defects in accordance with manufacture's specifications, regulatory requirements and enterprise policies and procedures.
	2.2 Defective cables and accessories are replaced and reported in accordance with enterprise policies and procedures.

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		2.3	All conduit and wiring are installed and secured in accordance with enterprise policies and procedures, regulatory requirements and industry standards.
		2.4	ALL installation, terminations and connections are made following the correct procedures in accordance with regulatory requirements, manufacturers' specifications and industry standards.
		2.5	All cables, wires, conductors and accessories are marked/tagged and labelled in accordance with enterprise policies and procedures, regulatory requirements and industry standards.
		2.6	The integrity of insulated material is maintained in accordance with requirements.
		2.7	All completed installations are tested for compliance with regulatory requirements, manufacturers' specifications and industry standards.
3.	Connect electrical wiring	3.1	Terminations and connections are made in accordance with regulatory requirements, manufacturers' specifications and industry standards.
		3.2	All terminations and connections are tested for compliance with specifications, regulatory requirements and industry standards.
		3.3	All cables, wires, conductors and connections are marked/tagged and labelled in accordance with enterprise policies and procedures, regulatory requirements and industry standards.
4.	Connect accessories	4.1	Accessories are inspected and tested for faults and defects in accordance with manufacture’s specifications, regulatory requirements and enterprise policies and procedures.
		4.2	Defective accessories are replaced and reported in accordance with enterprise policies and procedures.
		4.3	Accessories are connected in accordance with manufacture’s specifications, regulatory requirements and industry standards.

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		4.4 All connections are tested for compliance with specifications, regulatory requirements and industry standards.
		4.5 All accessories are marked/tagged and labelled in accordance with enterprise policies and procedures, regulatory requirements and industry standards.
5.	Complete work	5.1 Work is inspected and checked for compliance with enterprise quality assurance requirements, regulatory requirements and industry standards.
		5.2 Approval is obtained from authorised personnel to confirm completion of work is in accordance with established procedures before supply is connected.
		5.3 Work area is cleared of waste and all tools and equipment are cleaned and stored in accordance with enterprise policies and procedures.
		5.4 Status report(s) are completed and notified in accordance with established procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing simple power circuits.

Material may include:

- cable
- solder
- connectors
- straps
- electrical tape

Electrical supplies may include:

- alternating current
- direct current

Termination and connection may include:

- soldered joints
- crimping
- clamping
- pin connection
- plugs sockets

Tools and equipment may include:

- pliers
- screwdrivers
- hammers
- multimeter
- soldering iron

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Testing may include:

- continuity test
- resistance test
- insulation test
- polarity test

Installation may include:

- surface mount
- flush mount
- in PVC (polyvinyl chloride) conduits
- in metal conduits

Damages to accessories may include:

- cracked protective casing
- missing pieces
- missing connectors pins
- cracked conductors

Accessories may include:

- power outlets
- breakers
- transformers

Personal protective equipment may include:

- overalls
- boots
- safety glasses/goggles
- gloves
- ear plugs/muffs
- electrostatic discharge (ESD) kit
- face masks/respirators

Potential safety hazards may include:

- electrical shock
- damage to circuit boards
- electrostatic discharge
- overheating of components
- partial short circuits

Workplace policies and procedures may include:

- hazard control policies and procedures
- emergency, fire and accident procedures
- personal safety procedures
- procedures for the use of personal protective clothing and equipment
- conflict resolution procedures
- job procedures
- work instructions
- quality procedures
- environmental procedures

Occupational Health and Safety requirements may include:

- personal protective clothing and equipment
- hazard control policies and procedures
- emergency, fire and accident procedures
- safe handling and lifting procedures
- use and disposal of chemicals
- ergonomic considerations
- safe usage and storage of tools, material and equipment
- safe working environment

Sources of information/documentation may include:

- manufacturer's specifications
- enterprise operating procedures
- work specifications
- technical manuals
- industry publications
- workplace records
- customer requirements
- industry standards
- workplace codes of practice

Cable damage may include:

- crushing
- burning
- kinks
- cuts
- sheath twist
- bending radius

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install simple power circuit in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of the electrical circuitry, installation and termination procedures and regulatory and industry requirements
- determine work requirements and plan and organise work to fulfill such requirements
- select and use tools, equipment and material to complete tasks to specifications
- identify and replace defective material
- use tools and equipment safely
- perform installation and termination procedures
- perform testing and quality checks
- source, interpret and apply technical information to work activities
- complete essential post activity housekeeping
- communicate effectively with others in associated areas
- compliance with relevant Occupational Health and Safety requirements and industry standards
- perform all task in accordance with standard operating procedures, quality requirements and enterprise policies and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- electrical circuitry
- electrical principles
- power rating
- types of electrical cables
- electrical accessories
- safety and work procedures
- regulatory standards
- usage and maintenance of tools and equipment
- joining and bonding methods
- types of joints
- conduit installation
- termination and connection methods
- installation methods
- enterprise policies and procedures
- quality requirements
- environmental protection
- industry standards and codes of practice
- relevant legislation from all levels of government that affects business operation
- Occupational Health and Safety requirements

Skills
The ability to:

- read and interpret technical information
- plan and organise work
- solve problems
- use and maintain tools and equipment
- perform installation and termination procedures
- accurately identify and replace defective material
- communicate effectively
- accurately carry out all recording, reporting and documentation activities
- work safely
- work in compliance with policies and procedures

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- request/work sheet
- relevant technical documentation, manuals and manufacturer's specifications
- logs and work reporting documentation
- relevant tools, equipment and materials
- enterprise policies and procedures
- legislative, statutory and Occupational Health and Safety requirements
- Industry standards and codes of practice

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT0531A: Use personal productivity tools

Competency Descriptor: This unit deals with the skills and knowledge required to use the features and components of a personal productivity tool.

Competency Field: Information technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Use calendar features	1.1	Navigation within the calendar, scheduling of events and appointments and recording of all relevant information are performed following the correct procedures.
		1.2	The required alarm/ reminder features are customised and alarms/reminders are set using the correct procedures.
		1.3	The calendar views and any menus/task bars (where necessary) are customised and work is done within different views using the appropriate procedures.
		1.4	Events and appoints are deleted as required following the correct procedures.
		1.5	The calendars print options are customised and calendar is printed according to format requirements and operating guidelines.
2.	Use contact management	2.1	Edit and delete contacts are created as required and all relevant information are recorded in the correct fields according to the correct procedures and guidelines.
		2.2	Contact information is used for e-mail purposes in line with organisational policies in relation to privacy or individual requirements.
		2.3	Contacts are grouped into categories that are consistent and meaningful to the organisation or individual.
		2.4	Additional features where required such as linking activities and contacts are undertaken.
3.	Use additional features	3.1	Additional features such as expense sheets, search facilities, notes and/ or email are used correctly if available.

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3.2 Where possible, the additional features are integrated with other applications according to operating procedures and guidelines.

3.3 Where possible, the additional features are integrated with other components (such as the calendar or contacts) of the personal productivity tool using the appropriate procedures.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to using personal productivity tools.

Hardware may include:

- handheld personal productivity tools
- wireless laptops
- workstations
- mobile phones

Personal digital assistants may include but are not limited to:

- Palm Pilots
- WorkPad PC Companion
- Casio Cassiopeia
- Compaq Companion Web Site
- HP Jornada 720
- iPAQ H3650 Color Pocket PC
- handheld PCs running Microsoft Windows CE operating system
- Psions and their relatives

PDA are rapidly evolving and therefore this group of variables are only indicative

Operating systems may include:

- Command line
- Graphical User Interface

Keyboarding speed will vary according to:

- organisational requirements
- personal capabilities
- hardware requirements

Some devices will be voice activated. The keyboard technique will be in line with Occupational Health and Safety requirements for safe use of keyboards.

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to fully use the components and features of a particular personal productivity tool in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- perform tasks to specification
- use software tools effectively
- demonstrate the ability to manipulate features
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- general Occupational Health & Safety principles and responsibilities
- makeup and structure of web addresses
- types of personal digital assistants and their operations
- basic technical terminology in relation to reading help files and prompts
- logging procedures relating to accessing a PC
- evaluating and assessing the authority of information
- organisational guidelines on internet and email usage, web etiquette
- security, viruses, privacy legislation, copyright

Skills
The ability to:

- perform data entry
- analyse information
- solve problems
- make informed decisions
- operate personal digital assistants
- communicate electronically
- manipulate features
- read and write at a level where basic workplace documents are understood
- communicate clearly and precisely
- interpret user manuals

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(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- personal digital assistant

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET3111A: Perform manual soldering/de-soldering

Competency Descriptor: This unit deals with the skills and knowledge required to perform manual soldering/de-soldering

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan and prepare for soldering/de-soldering	1.1 Work requirements are identified from work orders and instructions.
	1.2 Information required for the work is accessed from appropriate sources to enable soldering/de-soldering to be performed in accordance with relevant legislative/regulatory, site and equipment manufacturer's requirements.
	1.3 Approved methods and equipment required are confirmed in accordance to the type of work required and materials to be soldered/de-soldered.
	1.4 Relevant occupational health and safety policies and procedures are observed throughout the soldering/de-soldering operations.
	1.5 Work area is prepared in accordance with work requirements and site procedures.
	1.6 Co-ordination activities with others involved in the operations throughout this work cycle are resolved through timely and effective communication.
2. Prepare materials for soldering	2.1 Materials preparation instructions are understood and followed.
	2.2 Materials are prepared using correct soldering tools, equipment, materials and procedures.
	2.3 Materials are prepared to specifications using instruction or standard operating procedures.
3. Solder materials	3.1 Correct soldering techniques, procedures, materials and soldering tools is selected.
	3.2 Materials are jointed, mounted and shaped to specification using standard operating procedures.
	3.3 Joins are cleaned using appropriate tools and techniques in accordance with the work plan.

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		3.4	Solder is applied using correct and appropriate techniques.
		3.5	Where appropriate, excess material is removed using correct and appropriate tools and techniques.
		3.6	Procedures for the protection of components are observed according to standard operating procedure.
4.	Inspect solder joints	4.1	Inspection procedure is undertaken to standard operating procedures.
		4.2	Joins are inspected visually and defects identified and repaired using appropriate techniques and in accordance with work plan.
		4.3	Inspection results are reported/recorded to standard operating procedures as required.
5.	Undertake de-soldering	5.1	Correct and appropriate techniques, procedures, de-soldering tools and equipment are selected.
		5.2	De-soldering procedures are completed without causing damage to any component or system.
		5.3	Material/device is removed and cleaned to specifications following the correct procedures.
		5.4	Checks are made to ensure that work is completed to specifications and material/device is free of solder.
6.	Complete soldering/de-soldering procedures	6.1	Work is completed and appropriate personnel notified in accordance with site requirements.
		6.2	Workplace tools, equipment and materials are cleaned and stored in accordance with site procedures.
		6.3	Work area is cleared of waste, cleaned and restored in accordance with site procedures.
		6.4	Work completion details are completed in accordance with site requirements.

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RANGE STATEMENT

This unit covers manual soldering/de-soldering for the installation and fabrication of electrical/electronic components. Work undertaken in a production or maintenance environment using predetermined standards of quality, safety and work procedures. Component protection procedures are predetermined. All materials and procedures specified via job instructions. All work undertaken to standard requirements.

Correct and appropriate soldering tools and equipment may include but not limited to:

- all types of soldering irons
- cutters
- brushes,
- files
- soldering tips
- solder syringes
- holding devices

Resources:

- hand tools, soldering equipment
- fluxes
- different types of soft solder
- power tools
- gas
- electric and flame heated irons and gas fired torches

Inspections carried out using with pre set-up equipment which may include but not limited to:

- visual
- mechanical
- electric techniques

Correct and appropriate materials may include but not limited to:

- solder (solid resin core and paste)
- flux (resin or powder)

Relevant Site Policies and Procedures:

- hazard policies and procedures
- emergency
- fire and accident procedures
- personal safety procedures
- procedures for the use of personal protective clothing and equipment
- use of motor vehicles
- issue resolution procedures
- job procedures
- work instructions
- quality and environmental procedures

Sources of Information/Documents:

- Manufacturer's specifications
- enterprise operating procedures
- component manufacturer's specifications
- customer requirements and industry/ workplace codes of practice

Scope of Soldering:

- cleaning components
- heating and/or soldering types of various thicknesses of material and electronic circuit repairs

Legislative Requirements:

- State and Territory Occupational Health and Safety legislation and national/state codes of practice

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Other Variables:

- all materials and procedures specified via job instructions
- inspections carried out using visual, mechanical or electric techniques with pre set up equipment
- all work undertaken to legislative and regulatory requirements
- depending on the actual soldering job, hand and power tools and measuring skills may be required. These are covered by other units
- work undertaken in a production or maintenance environment using predetermined standards of quality, safety and work procedures
- component protection procedures are predetermined

Recording of Information:

- accurate records of all relevant information are to be completed and may be stored manually, electronically or by other means

Correct and appropriate materials may include:

- solder (solid, resin, cord and paste)
- flux (resin or powder), etc

Occupational Health and Safety Procedures:

- safe manual handling and lifting
- customers
- staff equipment/tools
- premises and stock

Correct and appropriate soldering tools and equipment may include:

- gas
- electric soldering irons
- cutters
- brushes
- files
- soldering tips
- solder syringes
- holding devices

Communications:

- communications may be verbal, written, by telephone or by other means

Emergency Procedures:

- sickness, accidents, fire or store evacuation involving staff or customers

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EVIDENCE GUIDE

Competency is to be demonstrated by effectively performing manual soldering/de-soldering of electrical/electronic components in accordance with the range listed in the range of variables statement, relevant to the work orientation.

(1) Critical Aspects of Evidence

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with manual soldering and de-soldering or other competencies requiring the exercise of the skills and knowledge covered by this unit. This unit could be assessed in conjunction with any other units

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge.

During assessment the individual will:

- demonstrate safe working practices at all times
- demonstrate the ability to use soldering tools and equipment
- demonstrate the ability to manual soldering/de-soldering – electrical/electronic components efficiently
- communicate information about processes, events or tasks being undertaken to ensure a safe and efficient working environment
- take responsibility for the quality of their own work
- perform all tasks in accordance with standard operating procedures
- perform all related tasks to specification
- use accepted engineering techniques, practices, processes and workplace procedures.
- communicating effectively with others in associated areas:
- identifying and assessing hazardous situations and rectifying, where appropriate, or reporting to the relevant personnel
- applying relevant occupational health and safety policies and procedures
- planning and preparing for soft soldering
- carrying out a variety of soft soldering procedures
- completing soft soldering procedures
- completing essential post activity housekeeping

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- standards of quality
- safety and work procedures
- soldering tools and equipment
- material used in soldering
- procedures via job instructions
- inspections used in soldering operations
- electrical/electronic components for soldering
- regulatory requirements
- general knowledge of soft soldering theory including types of materials and fluxes for soft soldering applications
- general knowledge of common automotive terminology and vehicle safety requirements
- working knowledge of relevant occupational health and safety regulations/requirements, equipment, material and personal safety requirements
- working knowledge of the types and applications of cleaning agents
- working knowledge of types of materials that can be soldered
- working knowledge of relevant hazardous substances and toxic fumes/lead poisoning
- detailed knowledge of soft soldering techniques and procedures
- detailed knowledge of site reporting procedures

Skills
The ability to:

- safely to instructions
- select appropriate tools equipment and supplies
- use soldering tools and equipment
- handle materials
- select material
- apply quality assurance
- manual soldering/de-soldering – electrical/electronic components efficiently
- Plain English literacy and communication skills in relation to dealing with others involved in the work
- technical literacy and communication skills sufficient to interpret and apply common industry terminology, and interpret technical information and specifications related to soft soldering
- questioning and active listening skills, for example when obtaining information of safe working practices and soft soldering processes
- research and interpretative skills to locate, interpret and apply relevant for soft soldering procedures
- manipulative and dexterity skills to physically perform soft soldering
- problem solving skills for a limited range of differing procedural circumstances

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(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required
- any relevant workplace procedures
- a workplace or simulated workplace
- realistic situations requiring soft soldering
- site or equivalent instructions in soft soldering
- appropriate materials, tools and equipment
- hazardous substances information
- a qualified workplace assessor
- any relevant product and manufacturing specifications
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

The candidate will be required to orally, or by other methods of communication:

- answer questions put by the assessor
- identify colleagues who can be approached for the collection of competency evidence where appropriate
- present evidence of credit for any off-job training related to this unit

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.

(6) Context of Assessment

Competency shall be assessed on the job, off the job or a combination of both in accordance with workplace procedures

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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MEMMRD0091A: Terminate signal and data cables – (basic)

Competency Descriptor: This unit deals with the skills and knowledge required to terminate signal and data cables and applies to individuals working in the metal engineering and maintenance industry.

Competency Field: Metal, Engineering and Maintenance

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Identify and mark conductors/cables	1.1 Cables and conductors are identified using appropriate technique.
	1.2 Cables and conductors are labelled in accordance with specification.
2. Prepare cable	2.1 Termination requirements and specifications are obtained and understood.
	2.2 Cable ends are prepared to specifications utilising appropriate tools and techniques.
3. Terminate cables	3.1 Cables are terminated to specifications utilising appropriate tools and techniques.
	3.2 Terminations are tested/examined for compliance with specifications utilising appropriate test equipment and techniques.
4. Fix/secure cables	4.1 Cables are fixed/secured in accordance with standard operating procedures and specifications, utilising appropriate fixing/securing techniques.

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RANGE STATEMENT

Work undertaken under supervision or as part of team environment. Work undertaken in field or workshop environment. All work and work practices undertaken to regulatory and standard requirements. This unit covers basic signal and data cables, excluding specialist cables.

Termination techniques may include:

- solder
- crimp
- wire wrap non-insulated and pre-insulated
- connectors
- multi-terminal plugs and sockets
- co-axial
- terminal blocks

Types of cables covered include:

- signal cables;
- communication cables;
- extra low voltage power and control cables

Specifications and procedures are obtained from:

- circuit drawings
- data sheets
- instructions

Fixing and securing include:

- the use of clamps,
- cable ties,
- bolting, screwing

EVIDENCE GUIDE

Competency is to be demonstrated by effectively terminating signal and data cables in accordance with the range listed in the range of variables statement, relevant to the work orientation.

(1) Critical Aspects of Evidence

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, addressing the safety, quality, communication, materials handling, data cables or other units requiring the exercise of the skills and knowledge covered by this unit. Competency in this unit cannot be claimed until all prerequisite knowledge has been satisfied.

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge.

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During assessment the individual will:

- demonstrate safe working practices at all times
- demonstrate the ability to select and use appropriate tools and equipment
- demonstrate the ability to terminate signal and data cables
- communicate information about tasks being undertaken to ensure a safe and efficient working environment
- take responsibility for the quality of their own work
- perform all tasks in accordance with standard procedures
- perform all related tasks to specification
- use accepted engineering techniques, practices, processes and workplace procedures

(2) Pre-requisite Relationship of Units

- MEMFAB0011A Manual soldering/de-soldering - electrical/electronic components
- MEMCOR0091A Draw and interpret sketches and simple drawings
- MEMCOR0071A Use electrical/electronic measuring devices
- MEMCOR0191A Use hand tools

For termination and connection of specialist cables, see Unit MEMINS0062A (Install specialist cables).

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- safety and work procedures:
- standards of quality
- installation tools and equipment
- types of signal and data cables
- materials used in installation
- connection of wiring
- fixing methods
- types of joints
- termination and connection methods
- installation methods

Skills
The ability to:

- work safely to instructions
- select and use appropriate tools and equipment
- use terminating tools and equipment
- handle materials
- select material and supplies
- join signal and data cables
- terminate signal and data cables
- apply quality assurance

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(4) Resource Implications

The following resources should be made available:

- all tools, equipment, materials and documentation required
- any relevant workplace procedures
- any relevant product and manufacturing specifications
- any relevant codes, standards, manuals and reference materials

(5) Method of Assessment

The candidate will be required to:

- answer questions put by the assessor
- identify supervisors/colleagues who can be approached for the collection of competency evidence where appropriate
- present evidence of credit for any off-job training related to this unit

Tasks involved will be completed within reasonable timeframes relating to typical workplace activities.

(6) Context of Assessment

This unit may be assessed on the job, off the job, or a combination of both. The competencies covered by this unit would be demonstrated by an individual working under supervision or as part of a team. The assessment environment should not disadvantage the candidate.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

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ITINET3071A: Install cable trays and cables

Competency Descriptor: This unit deals with the skills and knowledge required to effectively prepare and install cable trays and cables associated with the network.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Plan and prepare for installation	1.1	Installation is planned and prepared to ensure OH&S and enterprise policies and procedures are followed.
		1.2	The work is appropriately sequenced in accordance with requirements.
		1.3	Appropriate personnel are consulted to ensure the work is co-ordinated effectively with others involved on the work site.
		1.4	Cable trays and cables are checked against job requirements.
		1.5	Cable trays and cables are obtained in accordance with established procedures and to comply with requirements.
		1.6	Location in which trunking are to be installed is determined from job requirements.
		1.7	Materials necessary to complete the work are obtained in accordance with established procedures and checked against job requirements.
		1.8	Tools, equipment and testing devices needed to carry out the installation work are obtained in accordance with established procedures.
		1.9	Tools, equipment and testing devices needed to carry out the installation work are checked for correct operation and safety.
		1.10	Preparatory work is checked to ensure no unnecessary damage has occurred and complies with requirements.
2.	Install cable trays and cables	2.1	OH&S policies and procedures for installing cable trays and cables are followed.
		2.2	Cable trays and cables are installed in accordance with requirements, without damage or distortion to the surrounding environment or services.

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		2.3	Cable trays and cables are terminated and connected in accordance with requirements.
		2.4	Unplanned events or conditions are responded to in accordance with established procedures.
.		2.5	Approval is obtained in accordance with established procedures from appropriate personnel before any contingencies are implemented.
		2.6	On-going checks of the quality of the work are undertaken in accordance with established procedures.
3.	Inspect and notify completion of work	3.1	Final inspections are undertaken to ensure the installed cable trays and cables conforms to requirements.
		3.2	Work is completed within acceptable time.
		3.3	Work area is left clean and tidy.
		3.4	Work completion is notified in accordance with established procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing cable trays and cables.

Tools/equipment to include:

- electric hand drill
- drill bits
- cold chisel & files
- ball pein hammer
- benders
- hack saw
- screwdrivers
- spirit level
- pipe dies
- pipes- PVC/metal
- pipe vices
- ladders

Materials may include:

- cables
- cable trays
- concrete
- clamps
- brackets
- saddle
- screws

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Installation techniques may include:

- surface mount
- flush mount
- PVC conduits
- metal conduits
- on masonry
- on steel, wooden surfaces
- with clamps and saddles

Occupational Health and Safety requirements may include:

- workshop/worksite safe working practices
- use of tools and equipment
- use of power tools
- safe handling and storage of materials

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install cable trays and cables in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of installation techniques for cables and cable trays
- demonstrate safe and effective operational use of tools and equipment
- demonstrate safe handling/storage of material/supplies/equipment
- perform installation of cable and cable trays in accordance with industry standards
- compliance with Occupational Health and Safety regulations applicable to workplace operations
- interactively communicate with others to ensure safe operations

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- types of cables
- types of cable trays
- installation procedures
- relevant industry standards
- enterprise guidelines and procedures

Skills
The ability to:

- work safely
- work with electrically operated tools and equipment
- read and interpret job specifications
- measure accurately
- communicate effectively
- install cables

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Underpinning Knowledge and Skills (Cont'd)

Knowledge Knowledge of:	Skills The ability to:
• material used in installation • relevant tools and equipment • Occupational Health and Safety requirements	• install cable trays • plan work activities • identify and select tools and equipment

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant tools, materials and equipment
- relevant product and manufacturing specifications
- relevant codes, standards, manuals and reference materials

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT0141A: Operate a computing package

Competency Descriptor: This unit deals with the skills and knowledge required to identify, select and correctly operate desktop applications for a variety of purposes and applies to individuals operating in the information and communication technology industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Use appropriate software	1.1 Requirements of task are accurately identified.
	1.2 Appropriate software is selected to perform task according to guidelines.
	1.3 Software is used to produce required outcome using a range of features and functions and the correct procedures.
	1.4 Documents are saved and stored in appropriate directories according to the correct procedures and guidelines.
2. Access, retrieve and manipulate data	2.1 Opening of software application follows correct procedures.
	2.2 Required file is accessed and is amended according to requirements and guidelines.
	2.3 Documents are produced to meet organisational requirements in a manner that incorporates OH&S practices.
	2.4 File is saved in appropriate directories in line with correct procedures.
	2.5 Applications are exited without loss of data in the correct manner.
3. Access and use help	3.1 Online help is accessed and used to overcome basic difficulties with applications using the correct procedures.
	3.2 Manuals and training booklets are used to solve minor problems.
	3.3 Requests are logged with help desk if requiring further help in conformance with established guidelines.

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4.	Use keyboard and equipment	4.1 Occupational Health and Safety regulations are followed for correct posture, lighting and length of time in front of computer.
		4.2 Keyboarding is carried out according to organisation guidelines on speed and accuracy.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to operating a computing package and applies to individuals in the information and communication industry.

Hardware may include but are not limited to:

- personal computers
- networked systems

Software may include but are not limited to:

- commercial software applications
- organisational specific software
- word processing
- spreadsheet
- database
- graphic
- communication packages
- presentation functionalities

May include presentation applications contained in: Microsoft Office, Lotus Suite, Claris Works, Star Office or other similar applications.

Information Technology components may include:

- hardware
- software
- communications packages

Documents may include but are not limited to:

- established files
- established applications

Storage media/disks may include but are not limited to:

- diskettes
- CDs
- zip disks
- local HDDs
- remote HDDs

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to produce several workplace documents utilising a minimum three (3) different functional desktop applications and within each desktop application a wide range of features are utilised correctly in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- perform all tasks in accordance with standard operating procedures
- perform tasks to specification
- use software tools effectively
- demonstrate the ability to navigate desktop environment
- interpret job specifications
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- safety for working with and around computers
- computer hardware and software systems
- procedure for initiating and closing down computer
- methods of locating files
- organisation's standards applicable to customising desktop environment and naming of files
- naming of files and folders
- functions of the different parts of the desktop window
- creating and saving files/folder/directories
- basic technical terminology in relation to reading help files and prompts
- log-in procedures for accessing a personal computer

Skills
The ability to:

- identify computer hardware
- manipulate data input devices
- access files
- use file operations
- manipulate features and tools
- customise desktop environment
- navigate desktop environment
- copy files

(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT0131A: Operate computer hardware

Competency Descriptor: This unit deals with the skills and knowledge required to determine, select and correctly operate basic computer hardware and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Use appropriate office peripherals	1.1	Functions of office peripherals are clearly identified.
		1.2	Requirements of task are accurately determined.
		1.3	Appropriate hardware is selected to perform task.
		1.4	Hardware is used to produce required outcome in accordance with operating procedures and organisation guidelines.
2.	Operate and maintain a range of hardware	2.1	A range of hardware equipment is operated to complete routine tasks following the correct procedures and policies.
		2.2	Hardware consumables are determined and replaced in line with procedures and guideline.
3.	Use keyboard and equipment	3.1	Occupational Health and Safety regulations are followed.
		3.2	Keyboarding is carried out according to organisation guidelines on speed and accuracy.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to operating computer hardware and applies to individuals in the information and communication technology industry.

Hardware components may include but are not limited to:

- personal computers
- networked systems
- personal organisers
- communications equipment

Keyboard equipment may include:

- mouse
- touch pad
- keyboard
- pens

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Storage media/disk may include but are not limited to:

- diskettes
- CDs
- zip disks
- local HDDs
- remote HDDs

Occupational Health and Safety guidelines include:

- use of screen based equipment
- use of computing equipment and peripherals
- ergonomic work stations

Organisational procedures may include but are not limited to:

- security procedures
- Occupational Health and Safety procedures
- maintenance procedures

Peripherals may include:

- printers
- scanners
- tape cartridges
- speakers
- multi media kits

Technical instructions include:

- instructions for use of specific computer hardware

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to determine, select and use hardware components and functions correctly and efficiently according to the task requirement. Hardware consumables are correctly identified and utilised according to the task requirement in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- perform all tasks in accordance with standard operating procedures
- perform tasks to specification
- demonstrate keyboarding skills
- demonstrate the ability to replace consumables
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- OH&S principles and responsibilities
- ergonomic principles to avoid back, wrist and eye strain
- procedures and exercises for avoiding strain and injury
- basic knowledge of current industry accepted hardware and software products with broad knowledge of general features and capabilities

Skills
The ability to:

- operate hardware component
- maintain hardware
- work safely

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

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ITIMED2672A: Select and employ multimedia tools

Competency Descriptor: This unit deals with the skills and knowledge required to select and employ hardware and/or software interactive media tools.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine functional requirements	1.1	Functional requirements of tools are identified as required from job specifications or client requirements.
		1.2	Conflicting or overlapping requirements are identified.
		1.3	Functional requirements of tools are documented and validated by appropriate personnel in accordance with enterprise policies and procedures.
		1.4	Available resources and budget are identified and validated by appropriate personnel in accordance with enterprise policies and procedures.
2.	Select tools	2.1	Relevant products and equipment are identified and assessed with reference to functional requirements.
		2.2	Relevant products and equipment interdependencies are identified and assessed with reference to functional requirements and system architecture.
		2.3	Best product and equipment solution, including limitations, is identified and documented in accordance with enterprise policies and procedures.
		2.4	Tools are selected as required in accordance with job requirements and enterprise policies and procedures.
3.	Install and configure tools	3.1	Tools are installed and configured according to vendor guidelines with reference to system architecture and job requirements.
		3.2	System architecture and configuration is adjusted as required in accordance with vendor specifications and industry best practices.
		3.3	Tests are prepared, scheduled and executed as required in accordance with vendor specifications.
		3.4	Errors are tracked, interpreted and repaired as required in accordance with vendor specifications.

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	3.5	Changes are made as required based on test results.
	3.6	Tool configuration(s) is documented according enterprise policies and procedures.
4. Use tools	4.1	Appropriate hardware and software tools to perform activity are selected.
	4.2	Features and capabilities of tools are fully utilised for maximum efficiency and productivity.
	4.3	Tools are employed according to vendor guidelines.
	4.4	Required outcomes are produced in accordance with job specifications or client requirements.
	4.5	User help documentation and other resources are accessed and used to overcome difficulties experienced in use of tools.
	4.6	Required Occupational Health and Safety standards, regulations and ergonomics advice are followed in the use of hardware and software tools.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to selecting and employing multimedia tools.

Functional requirements of tools may include:

- purpose
- capabilities
- features
- ease of use
- cost effectiveness
- flexibility
- currency of technology

Job specifications/client requirements may include:

- budget
- resources
- metaphor
- purpose
- audience
- multimedia elements
- script

Conflicting/overlapping requirements may include:

- similar purposes
- similar capabilities and scope
- system specific
- not readily used with other products
- media specific

Appropriate personnel may include:

- supervisor
- project manager
- client
- designer
- programmer

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Interactive media tools may include:

- linear and non-linear methods of editing sound and video
- multimedia authoring tools
- tools and programming techniques for multimedia interactivity
- meta tag managers
- music engines
- CD-ROMs and DVDs
- media streaming tools
- graphic development tools
- video development tools
- multimedia management tools
- 3D modelling and rendering

System architecture may include:

- standalone system
- networked system
- operating system
- configuration

Outcome may include:

- educational product
- game
- promotional product
- information product
- training product
- aspects or sections of film/ video production:
- feature
- documentary
- short film and/or video
- animations
- commercials
- live or pre-recorded performances
- music video
- television production of any type (music, drama, comedy, variety, sport)
- live or pre-recorded television productions
- educational product
- game
- promotional product
- information product
- training product
- e-commerce

Vendor specifications may include:

- installation procedures
- configuration procedures
- maintenance procedures
- testing procedures
- operating procedures
- user support mechanisms
- warranty guidelines
- licensing agreements

Functional requirements may include:

- editing
- digitizing
- designing
- programming

Test may include:

- functionality test
- diagnostic test
- de-bugging test

Client may include:

- internal department
- private enterprise
- individual
- public

Standards may include:

- international standards
- organisational standards
- project standards
- industry standards

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Solution may include but is not limited to:

- new hardware
- hardware upgrades
- new software
- software upgrades
- user training or implementing a new system

Occupational Health and Safety standards may include:

- workplace environment and safety
- use and maintenance of tools and equipment
- handling and disposal of materials
- protective clothing and equipment
- use of ladders, scaffolding and platforms
- removal of obstacles
- personal grooming and hygiene
- response to emergency, fire and accident
- security of documents, personnel and equipment

Ergonomics issues may include:

- using and cleaning Visual Display Units (VDUs)
- advice on footrests
- exercises
- times for breaks
- armrests and chairs

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to select and employ hardware and software multimedia tools in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of hardware and software tools, technology requirements of multimedia tools, multimedia design technologies and techniques
- collect, read and interpret technical information
- accurate determination of functional requirements of hardware and software tools
- determination and selection of appropriate hardware and software tools
- application of correct installation, configuration and testing procedures in accordance with vendor specifications
- use of hardware and software tools to achieve required outcomes in accordance with customer requirements/job specifications
- follow required documentation and reporting procedures
- work in compliance with all standards, regulations and guidelines

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- multimedia development methodologies
- software and hardware installation and configuration procedures
- interaction between relevant hardware and software products
- current industry accepted hardware and software products
- vendor specifications
- function and features of animation development tools
- function and features of graphic development tools
- function and features of media management tools
- function and features of video development tools
- function and features of virtual reality technologies
- function and features of audio development tools
- basic design principles of each media type
- application of capabilities and features of multimedia tools
- Occupational Health and Safety standards and regulations
- ergonomic issues
- organisational standards
- industry standards
- testing methodologies
- types of media and multimedia outcomes
- multimedia production techniques

Skills
The ability to:

- assess hardware and software tools
- integrate multiple items of data and reconcile conflicting information
- develop creative solutions and demonstrate resourcefulness
- predict outcomes and results of selection of tools
- identify key sources of information
- understand specification sheets
- accurately summarise and document information
- see the conflicts and integration capabilities between diverse equipment
- organise and asses importance and relevance of product information
- communicate effectively

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- work instructions/client requirements
- appropriate hardware and software tools
- enterprise policies, procedures and guidelines
- industry standards and regulations

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT0252A: Design organisational documents using computing packages

Competency Descriptor:

This unit deals with the skills and knowledge required to produce organisational documents using application software within organisational guidelines and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Design documents to meet organisational requirements	1.1 Business document requirements are determined and configured according to guidelines.
	1.2 Organisational design guidelines are determined and implemented.
	1.3 Appropriate software is selected using the correct procedures.
	1.4 Software is used to design documents according to the correct procedures and guidelines.
	1.5 Documents are stored for access and editing as required in conformance with procedures and guidelines.
2. Access, retrieve and manipulate data	2.1 Software application is opened using the correct procedures.
	2.2 File is determined and opened, and design is amended according to requirements and procedures.
	2.3 Documents are designed to meet organisational requirements in line with organisation guidelines and procedures.
	2.4 Applications are exited without loss of data in the correct manner.

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RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to designing organisational documents using computing packages and applies to individuals in the information and communication technology industry.

Information Technology components may include:

- hardware
- software
- communications packages

Storage media/disks may include but are not limited to:

- diskettes
- CDs
- zip disks
- local HDDs
- remote HDDs

Hardware may include but are not limited to:

- personal computers
- networked systems
- personal organisers
- communications equipment

Peripherals may include:

- printers,
- scanners
- tape cartridges
- speakers
- multi media kits

keyboard equipment may include:

- mouse
- touch pad
- keyboard
- pens

Software may include but are not limited to:

- commercial software applications
- organisational specific software
- word processing
- spreadsheet
- database
- graphic
- communication packages
- presentation functionalities

May include presentation applications contained in: Microsoft Office, Lotus Suite, Claris Works, Star Office or other similar applications.

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Keyboarding speed will vary according to:

- different organisational requirements
- different job roles within an organisation.

Documentation and reporting for version control may follow ISO standards:

- audit trails
- naming standards
- version control
- project management templates and report writing styles will vary according to organisational approach

The keyboard technique will be in line with OHS requirements for safe use of keyboards.

Information gathering processes may have associated templates.

Organisational variables may include but are not limited to:

- keyboarding and accuracy as per organisation guidelines
- Occupational Health and Safety guidelines related to use of screen based equipment, computing equipment and peripherals and ergonomic work stations; security procedures

Occupational Health and Safety Guidelines relate to:

- use of screen based equipment
- use of computing equipment
- use of peripherals
- ergonomic work stations

Business documents may include:

- newsletters
- client database
- proposals
- reports
- account statements
- project reviews
- web pages

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to producing organisational documents using application software within organisational guidelines. Competency should be demonstrated by building several working documents, with final output being produced with minimum supervision. Function and features of a range of available software applications are readily accessed and employed according to organisational requirements in accordance with the performance criteria and the range listed within the range of variable statements.

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(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- indicate compliance with organisational policies and procedures
- apply organisational quality procedures and processes
- perform tasks to specification
- use software tools effectively
- demonstrate the ability to manipulate features
- interpret job specifications
- safe and effective operational use of all equipment
- interactively communicate with others to ensure safe and effective workplace

(2) Pre-requisite Relationship of Units

- ITIDAT0141A Operate a computing package

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- detailed knowledge of organisational style guide
- organisation storage and retrieval procedures
- broad knowledge of function and features of operating systems
- general Occupational Health and Safety regulations
- current business practices in relation to preparing reports
- use of input/output devices
- organisational procedures for document design

Skills
The ability to:

- carry out decision making in a limited range of options
- perform general customer service in relation to internal customers
- employ questioning and actively listening skills to clarify information
- use problem solving skills for known problems in routine procedures
- employ basic analytical skills for known problems in routine procedures
- display literacy in regard to general workplace documentation
- operate computing packages and hardware

(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- computing packages

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(5) Method of Assessment

Competence in this unit may be assessed using formative assessment to ensure consistency of performance in a range of contexts.

Assessment of this unit of competence could include review of documents developed by the candidate. Questions related to the performance criteria and directed to the candidate, peers and business client will assist in assessing competence. Observation of skills will assist in the collection of evidence.

Simulated activities must closely reflect the workplace.

Peers and supervisors must be available to give information on the extent and the quality of contribution made.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 1	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT0182A: Develop macros and templates for clients using standard products

Competency Descriptor:

This unit deals with the skills and knowledge required to develop macros and templates for clients using industry recognised software applications and applies to individuals in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1	Determine macro or template requirement	1.1	Client requirements are determined in line with organisational guidelines.
		1.2	Macro/template specifications are developed and client's needs are confirmed.
2	Develop macro or template for client	2.1	Macro/template specifications are developed using standard package in line with organisation guidelines.
		2.2	Client feedback is obtained.
		2.3	Amendments are made as required for client.
3	Provide client support for the macro or template	3.1	Support/instruction requirements are determined and documented.
		3.2	Client is instructed in use of macro/template.
		3.3	Client documentation is provided to help desk for future support.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to developing macros and templates for clients using standard products to individuals in the information and communication industry.

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Software may include but are not limited to:

- commercial software applications
- organisational specific software
- word processing
- spreadsheet
-
- database
- graphic
- communication packages
- presentation functionalities

May include presentation applications contained in: Microsoft Office, Lotus Suite, Claris Works, Star Office or other similar applications

Storage media/media may include but are not limited to:

- diskettes
- CDs
- zip disks
- local HDDs
- remote HDDs

Information Technology components can include:

- hardware
- software
- communications packages

Organisational variables may include but are not limited to:

- client service standards
- style guide
- client support documentation procedures
- storage procedures for macro/template such as, common drive, hard disk, software library.

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to development of a variety of macros and templates using industry recognised application packages. Competency must be demonstrated in the development of a specification for macros and templates in accordance with the performance criteria and the range listed within the range of variable statements .

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- determination of client requirements
- apply organisational quality procedures and processes
- develop macros and templates
- respond to client feedback
- provide support documents
- instructing clients in use of product

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(2) Pre-requisite Relationship of Units

- ITICOR0231A Operate a personal computer

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- general knowledge of functions and features of the operating system
- general knowledge of software and hardware supported by the organisation
- general understanding of features and functions of particular categories of commercial computing packages
- software packages supported by the organisation

Skills
The ability to:

- determine task specifications
- use a variety of computing packages
- communicate clearly and precisely when dealing with clients and team members
- read and interpret software manuals from a user's perspective
- give one to one instruction
- design documents

(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- personal computer/networked system
- relevant software

(5) Method of Assessment

Competency shall be assessed while work is undertaken under direct supervision with regular checks, but may include some autonomy when working as part of a team.

Competencies in this unit may be determined concurrently. Assessment must be in accordance with the performance criteria.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Simulated activities must closely reflect the workplace.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

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ITINET1842A: Connect a workstation to the Internet

Competency Descriptor: This unit deals with the skills and knowledge required to connect a personal computer to the Internet and applies to individuals operating in the information and communication technology industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Account with an internet service provider (ISP) is created	1.1	Internet service providers are compared and analysed in relation to cost, connectivity and support.
		1.2	Internet Service Provider (ISP) is chosen and account is created with appropriate password according to operating procedures.
		1.3	Dial up networking connection shortcut is created on the desktop using relevant software and procedures.
2.	Modem is connected and tested	2.1	Commercially available modems are compared as required for functionality and cost with reference to personal computer configuration and connectivity.
		2.2	Modem is selected based on preferred specifications and guidelines.
		2.3	Modem is installed and tested as required in accordance with vendors' instructions and personal computer operating system.
3.	Browser software is loaded	3.1	Browser software is selected and loaded as required in accordance with procedures.
		3.2	Browser software is configured as required by personal computer configuration and personal preference.
4.	Personal computer is connected to the internet	4.1	Personal computer is connected to the internet through dial up networking shortcut according to correct procedures.
		4.2	Browser is launched to enable access to the internet following established procedures.

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RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to connecting a workstation to the Internet.

Hardware may include Information Technology equipment of all types:

- workstations
- personal computers
- networks
- remote sites
- servers

Connections made via:

- cable
- Asymmetric Digital Subscriber Line (ADSL)
- Integrated Service Digital Network (ISDN)
- fibre optics cable
- twisted pair cable

Browser software may include:

- MS Explorer
- Netscape Navigator
- Opera
- Mozilla

Modems may include:

- internal modem
- external modem
- networked modem

Configuring browser may include:

- accessing Internet Connection Wizard
- setting LAN configurations
- configure proxy server preferences
- setting up Internet Mail Account

Personal computer configuration may include:

- installing network interface card
- installing network card drivers
- setting up IP configurations
- testing IP configurations

Preferred specifications for modem may include:

- speed or bandwidth of connection
- type of modem
- how the modem compresses data

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to connect a workstation to the Internet in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- demonstrate knowledge of operations of the internet and services provided by Internet Service Providers
- perform comparative analysis of the products and services provided by Internet Service Providers and determine best options
- select modems and browser software based on specifications

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Critical Aspects of Evidence (Cont'd)

- demonstrate the ability to carry out installation and testing procedures
- configure software and desktop environment to specifications
- connect to and access the Internet using appropriate procedures
- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- compliance with organisational policies, quality procedures, processes and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- internet service providers (ISPs)
- the varying plans and services provided by ISPs
- current browser software and their features
- configuring software and personal computer for Internet connection
- browser software installation procedures
- the operation of the world wide web, web pages and directories
- codes and regulations governing accessing the internet
- modem installation procedures
- modems used in the industry and their operations
- operations of personal computers
- dial up network connection
- types of internet connections
- Occupational Health and Safety requirements
- Industry standards relevant to the internet

Skills
The ability to:

- operate a personal computer
- communicate effectively
- access and evaluate information
- perform installation to specifications
- conduct tests
- select browser software
- install and configure browser software
- access the Internet

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(4) Resource Implications

The following resources should be provided:

- work environment (simulated or actual enterprise)
- personal computer, modem and browser software

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

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ITINET3022A: Diagnose and rectify faults in electronic components

Competency Descriptor: This unit refers to the diagnosing and repairing faults in electronic component and may involve the work to be carried out with equipment online.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan and prepare for the work	1.1 Work requirements are identified from request/work orders and clarified/confirmed with appropriate parties or by site inspection.
	1.2 Occupational health and safety standards and other statutory requirements are identified, applied and monitored throughout the work procedure.
	1.3 Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications.
	1.4 Relevant plans and drawings are selected and interpreted in accordance with the work plan.
	1.5 Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications.
	1.6 Work is planned in detail including sequencing and prioritizing and considerations made, where appropriate, for the maintenance of security and operational status in accordance with system/site requirements.
	1.7 Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work.
	1.8 Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures.
	1.9 Work area is prepared in accordance with work requirements and site procedures.

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2.	Verify the fault	2.1	Normal performance and function of the equipment is ascertained by consulting appropriate reference sources in accordance with the work plan.
		2.2	Fault indicators and appropriate technical information/diagnostic techniques are used to verify reported symptoms/faults in accordance with the work plan.
		2.3	Symptoms are reproduced and monitored if possible, whilst due regard for personnel safety and system security is observed in accordance with the work plan.
3.	Find the fault	3.1	Required isolations are confirmed where appropriate in accordance with site requirements.
		3.2	Fault finding is carried out in conjunction with others involved in, or affected by, the work in accordance with enterprise/job requirements.
		3.3	Equipment components, wires, cables, terminations and support fixings are inspected for obvious faults in accordance with the work plan.
		3.4	All appropriate fault finding/diagnostic techniques are identified, selected and used to determine the fault in accordance with the work plan.
		3.5	All appropriate components are disconnected to enable accurate test measurements of suspected faulty components without the concern of back-feed readings in accordance with the work plan.
		3.6	Test and measurement instruments are used in accordance with manufacturer's instructions and job requirements.
4.	Determine cause of fault	4.1	All appropriate personnel are consulted in order to obtain as many details relating to the faulty equipment as possible in accordance with the work plan.
		4.2	Appropriate use is made of any information from fault indicators and maintenance records in accordance with the work plan.
		4.3	Valid conclusions about the nature and cause of the fault are reached from interpretation of available evidence in accordance with the work plan.

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5.	Repair or rectify the fault	5.1	Required isolations are confirmed where appropriate in accordance with site requirements.
		5.2	Appropriate repair procedures are undertaken in conjunction with others involved in, or affected by, the work in accordance with the work plan.
		5.3	Faulty, worn, damaged or unsecured components are replaced, repaired or secured in accordance with the work plan.
		5.4	Parts and components are selected and replaced as required in accordance with appropriate specifications and the work plan.
		5.5	Components disconnected for testing are reconnected having been proven free of faults and all terminations are then checked to ensure they are electrically and mechanically sound in accordance with the work plan.
		5.6	All faults are repaired or rectified in accordance with the work plan.
		5.7	Final job inspection is performed and permits are relinquished as required in accordance with the work plan.
6.	Complete the work	6.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements.
		6.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures.
		6.3	Tools and equipment are maintained and stored in accordance with site/enterprise procedures.
		6.4	All documentation and reporting are completed in accordance with enterprise procedures.
		6.5	Work completion details are finalised in accordance with site/enterprise procedures.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to diagnosing and rectifying faults in electronic component.

Components may include:

- printed circuit boards
- modems
- central processing unit
- adapters
- network interface cards
- universal serial bus devices
- communications equipment and protection equipment
- monitors
- printers

Test and measurement instruments may include:

- multimeter
- potentiometer
- hand-held communicator/ programmer
- frequency counter
- function generator
- logic analyser and specialised test equipment
- cable testers and checkers
- tone generators and locators
- diagnostic tools

Materials may include:

- cables
- solder/flux
- lubricants
- cleaning solvents
- contact cleaners
- connectors
- adhesives and sealants

Tools and equipment may include:

- pliers
- screwdrivers
- drills
- wire stripper
- chisels
- hammer
- solder iron

Occupational Health and Safety requirements may include:

- workshop/worksite safe working practices
- use of tools and equipment
- use of power tools
- safe handling and storage of materials

Faults may include:

- incorrect output
- damage circuit
- error messages

Guidelines and procedures may include:

- industry standards
- enterprise procedures
- industry codes of practice
- manufacturers' specifications

Appropriate personnel may include:

- network administrator
- system administrators
- supervisors
- client support managers

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to diagnose and rectifying faults in electronic equipment in accordance with the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate compliance with Occupational Health and Safety regulations applicable to workplace operations
- show compliance with organizational policies and procedures including Quality Assurance requirements
- adopt and carry out correct procedures prior to undertaking task
- demonstrate safe and effective operational use of tools and equipment
- demonstrate the ability to diagnose faults in electronic equipment
- demonstrate correct procedures in repairing faults in electronic equipment
- give particular attention to safety and elimination of hazards
- demonstrate safe handling/storage of material/supplies
- interactively communicate with others to ensure safe operations
- demonstrate effective engineering techniques to produce designed outcome

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- occupational health and safety standards;
- relevant manufacturing requirements and codes of practice
- relevant industry standards
- equipment and material required to perform the work
- isolation procedures
- layout of plant/work site and operation of its equipment
- faultfinding and diagnostic techniques
- repair techniques
- electronic equipment
- regulatory procedures
- electrical principles
- test and measurement instruments
- circuit plan appreciation
- engineering and electronic workshop practice
- communication principles

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Underpinning Knowledge and Skills: (Cont'd)

Skills
The ability to:

- apply occupational health and safety standards
- follow relevant statutory regulations and codes of practice
- apply relevant industry standards
- use and update plans
- drawings and texts
- use tools and relevant equipment
- use test and measurement instruments
- verify and identify faults
- use appropriate fault finding and diagnostic techniques
- repair faults
- select materials for the job
- apply regulatory procedures
- apply electrical principles
- communicate effectively
- apply data analysis techniques and tools
- apply engineering and electronic workshop practices

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- tools, equipment, materials and documentation required
- relevant product and manufacturing specifications
- relevant codes, standards, manuals and reference materials

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET3082A: Disassemble/assemble electronic components

Competency Descriptor: This unit identifies the competence required to disassemble and assemble components of the system as a part of a maintenance procedure.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Plan and prepare to assemble/disassemble components	1.1 Components to be assembled/dismantled are correctly identified from customer or enterprise information.
	1.2 Correct methods for assembling/dismantling components are determined according to enterprise policies and procedures and appropriate sources/documents.
	1.3 Work to assemble/disassemble components is planned and prepared to ensure that all safety policies and procedures are followed and the work is appropriately sequenced in accordance with requirements.
	1.4 Appropriate personnel are consulted to ensure the work is coordinated effectively with others involved on the work site.
	1.5 Components are checked against job requirements.
	1.6 Materials necessary to complete the work are obtained in accordance with established procedures and checked against job requirements.
	1.7 Tools, equipment and testing devices needed to carry out the work are obtained in accordance with established procedures and checked for correct operation and safety.
	1.8 Preparatory work is checked to ensure no unnecessary damage has occurred and complies with requirements.
2. Assemble/disassemble components	2.1 Components are located/obtained and all the sub-component parts are correctly identified.
	2.2 Components are assembled/dismantled and tolerances/wear checked against manufacturer specifications.

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		2.3	Assembly/disassembly is carried out to comply with manufacturer specifications and established industry guidelines and standards.
		2.4	All assemble activities are carried out according to industry regulations/guidelines, OH&S guidelines and enterprise procedures/policies.
		2.5	Circuits are checked as being isolated where necessary using specified testing procedures.
		2.6	Unplanned events or conditions are responded to in accordance with established procedures.
		2.7	Approval is obtained in accordance with established procedures from appropriate personnel before any contingencies are implemented.
		2.8	On-going checks of the quality of the work are undertaken in accordance with established procedures.
3.	Clean and test components	3.1	Correct cleaning procedure is determined from manufacturer specifications and/or in accordance with enterprise policies and procedures.
		3.2	Components/sub-component parts are cleaned using correct procedures, materials, tools and equipment.
		3.3	Components/sub-component parts are tested for correct operation and future use.
		3.4	Decision to retain/replace/repair/ adjust/service components is correctly determined according to enterprise policies and procedures.
4.	Clean work area	4.1	All waste material is removed and disposed of in accordance with established procedures.
		4.2	Unused material is stored and the work area is cleaned.
		4.3	Tools and equipment are cleaned, maintained and stored in accordance with established guidelines.
5.	Inspect and notify completion of work	5.1	Final inspections are undertaken to ensure the assembled/disassembled components conform to requirements.
		5.2	The relevant personnel are notified of work completion in accordance with enterprise procedures.

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5.3 Relevant signing off/handing over procedures are Work completion is notified in accordance with established procedures.

5.4 All documentation and reporting requirements are carried in accordance with enterprise procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to assembling/disassembling electronic component.

Electronic components may include:

- modems
- monitors
- central processing unit
- adapters
- network interface cards
- universal serial bus devices
- hubs
- switches
- repeaters
- routers

Preparatory work include:

- isolation of component
- removal of protective devices
- removal of packaging material
- removal of hazards
- removal of power supply
- securing of work area

Resources may include:

- hand tools
- power tools
- special equipment
- measuring equipment
- lifting equipment
- cleaning equipment
- parts washers
- chemical cleaning equipment

Sources of information/documents may include:

- manufacturer specifications
- company operating procedures
- industry/workplace codes of practice
- industry best practices
- customer requirements

Work activities include:

- dismantling/assembling
- cleaning
- measuring against specifications

Sub-components parts may include:

- circuit boards
- fuses
- capacitors

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Sub-components parts may include:

- inductors
- motors
- resistors
- switches
- relays

Work activities include:

- visual inspection
- comparing against new
- comparing against specifications

Standards and procedures may include:

- industry best practices
- Occupational Health and Safety requirements
- legislative requirements
- statutory regulations
- enterprise guidelines and procedures
- quality assurance requirements
- industry standards

Relent personnel may include:

- supervisor
- system administrator
- network engineer
- network administrator
- managers

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to assemble/disassemble electronic components in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of electronic components and recommended assembling/disassembling procedures
- adopt and carry out correct procedures prior to undertaking task
- demonstrate safe and effective operational use of tools and equipment
- demonstrate the ability to assemble/disassemble electronic components
- plan work activities and work efficiently to minimize disruptions
- apply isolation/shut down procedures
- give particular attention to safety and elimination of hazards
- demonstrate safe handling/storage of material/supplies/equipment
- interactively communicate with others to ensure safe operations
- demonstrate compliance with all standards, statutory regulations and organizational policies and procedures including quality requirements
- compliance with reporting and documentation requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- assembling/dismantling methods and procedures
- relevant sources of technical information
- component safety requirements
- relevant enterprise policies
- personal safety requirements
- testing procedures
- cleaning methods and materials
- electrical principles
- types of electronic components and their sub-components
- Occupational Health and Safety procedures
- soldering
- functions and specifications of components and their sub-units
- electronic circuits
- operations and maintenance of tools and equipment
- repairing and maintenance of components and their sub-units
- workplace hazards
- industry standards and codes of practice

Skills
The ability to:

- access and interpret technical information
- apply dismantling/assembling procedures
- apply testing techniques
- use relevant tools and equipment
- maintain customer/company records
- use measuring equipment
- apply testing procedures
- check and compare various components to actual specifications
- decide on possible repair action necessary

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant materials, components, tools and equipment
- enterprise and industry requirements and standards
- any relevant product and manufacturing specifications

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

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ITINET3032A: Install and terminate systems

Competency Descriptor: This unit deals with the skills and knowledge required to terminate and install cables and applies to individuals involve in installation and maintenance activities.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare for installation and termination of cables	1.1 Installation requirements are accurately identified and are confirmed with the appropriate personnel.
	1.2 A plan of work activities is developed and discussed/confirmed with the relevant authority.
	1.3 All resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications.
	1.4 Correct cables and materials are selected in accordance with job requirements.
	1.5 Relevant plans and drawings are selected and accurately interpreted in accordance with the work requirements.
	1.6 Work area is prepared in accordance with work requirements and enterprise procedures.
	1.7 Potential hazards and obstructions are identified and appropriate actions are taken in accordance with established procedures.
	1.8 Users and other involved parties are notified of isolation or shut down requirements and agreement is reached on time and duration of disruption.
	1.9 It is ensured that all tasks to be finished in preparation for installation work are completed and incomplete work is reported to the relevant authority.
	1.10 Work is planned in detail including sequencing of activities and prioritising so that work is completed efficiently and with minimal disruption to users.

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2.	Install cables	2.1	Installations are made to specifications, manufacturer requirements and to standard and regulatory requirements.
		2.2	All cables are installed to work specifications.
		2.3	All cables, wires, conductors and installations are marked/tagged and labelled to specification.
		2.4	All joints are made following the correct procedures.
		2.5	All completed installations are tested for compliance with specifications.
		2.6	Equipment and wiring are installed in a manner that does not reduce the type of protection afforded by the equipment design.
3.	Connect and terminate cables	3.1	Terminations/connections are made to specifications, manufacturers' requirements and to regulatory and standard requirements.
		3.2	All brackets, clamps and holders are adjusted and fixed to specifications.
		3.3	All cables, wires, conductors and connections are marked/tagged and labelled to specification.
		3.4	All completed wiring and connections are tested for compliance with specifications.
4.	Complete the work	4.1	Work is completed and appropriate personnel notified in accordance with enterprise requirements.
		4.2	Work area is cleared of waste, cleaned, restored in accordance with enterprise requirements.
		4.3	All wastes are disposed of in accordance with environmental safety guidelines.
		4.4	Tools and equipment are maintained and stored in accordance with manufacturers' specifications and enterprise guidelines.
		4.5	The required testing and checks are conducted to ensure that work is carried out to specifications and the necessary corrective measures are taken where problems exist.

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5.	Prepare installation documentation	5.1 It is confirmed with the appropriate personnel that installation meets requirements and the established signing off/handing over procedures are correctly followed.
		5.2 Reports of installation activities are accurately completed and filed in accordance with enterprise procedures and guidelines.
		5.3 Relevant sign off/hand over documentation is completed accurately, legibly and concisely and accurate updates are made as required.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to installing and terminating wiring systems.

Cables may include:

- fiber optics
- shielded twisted pair
- unshielded twisted pair
- coaxial cable
- sheathed cables

Wiring systems may include:

- electrical systems
- voice communication systems
- control systems
- data communication systems
- voice and data

Preparatory work may include:

- installation of conduits
- installation of cable trays
- preparation of surfaces
- removal of hazards
- isolation from power supply
- securing of work area

Tools and equipment to include:

- combination pliers
- long nose pliers
- side cutting pliers
- solder irons
- crimping tools
- cable testers

Termination and connection includes the utilisation of a range of methods including:

- clamping
- pin connection
- soldered joints
- crimping
- plugs sockets
- clamping of cables and wires

Types of joint may include:

- twist joints
- straight twist joints
- tee twist joints
- tee joints
- married joints
- straining point joints
- mechanical joints

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Installation may include but not limited to:

- surface mount
- flush mount
- in PVC conduits
- in metal conduits
- using mechanical connectors

Testing may include:

- continuity checks
- resistance checks

Standards and procedures may include:

- industry best practices
- Occupational Health and Safety requirements
- legislative requirements
- statutory regulations
- enterprise guidelines and procedures
- quality assurance requirements
- industry standards

Relent personnel may include:

- supervisor
- system administrator
- network engineer
- network administrator
- managers

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to install and terminate wiring systems in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects of Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of wiring systems and installation/termination procedures
- demonstrate the ability to select and use appropriate tools and equipment
- demonstrate the ability to terminate and connect cables
- communicate information about tasks being undertaken to ensure a safe and efficient working environment
- take responsibility for the quality of their own work
- perform all tasks in accordance with standard operating procedures
- perform all related tasks to specifications
- use accepted installation and termination techniques, practices, processes and workplace procedures
- demonstrate safe working practices at all times

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- types of cables
- safety and work procedures
- industry and regulatory standards
- installation tools and equipment
- materials used in installation
- connection of cables
- bonding methods
- types of joints
- termination and connection methods
- installation methods
- testing methods
- Occupational Health and Safety requirements

Skills
The ability to:

- work safely to instructions
- select and use appropriate tools and equipment
- install cables to specification
- handle materials
- select material and supplies
- join cables
- terminate cables
- conduct testing on wiring system

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant cables, materials, tools and equipment
- enterprise and industry requirements and standards and codes
- relevant documents and manuals

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

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BSBSBM0012A: Craft personal entrepreneurial strategy

Competency Descriptor: This unit deals with the skills and knowledge required to craft an entrepreneurial strategy that fits with the attitudes, behaviours, management competencies and experience necessary for entrepreneurs to meet the requirements and demands of a specific opportunity.

Competency Field: Small Business Operations

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Demonstrate knowledge of the nature of entrepreneurship	1.1 Concepts associated with entrepreneurship are clearly defined.
	1.2 Factors which influence entrepreneurship in and outside of Jamaica are correctly identified and explained.
	1.3 The importance of entrepreneurship to economic development and employment is explained clearly.
	1.4 The findings of research conducted on entrepreneurial ventures and successes in the Caribbean region are clearly presented in an appropriate format.
	1.5 Differences between wage employment and entrepreneurial ventures are correctly stated.
2. Identify and assess entrepreneurial characteristics	2.1 Relevant research is carried out and required entrepreneurial characteristics identified.
	2.2 Entrepreneurial characteristics identified are assessed and ranked.
	2.3 An understanding of the process and discipline that enable an individual to evaluate and shape choices and to initiate effective action is correctly demonstrated.
	2.4 Factors that will help an entrepreneur to manage the risk and uncertainties of the future, while maintaining a future orientated frame of mind, are identified.

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3.	Develop self-assessment profile	3.1	Self-assessment tools/methods to identify personal entrepreneurial potential are identified and properly used.
		3.2	The ability to apply creativity, problem-solving techniques and principles to solve business related problems are demonstrated.
		3.3	Feedback from others for the purpose of becoming aware of blind spots and for reinforcing or changing existing perceptions of strengths/ weaknesses is appropriately obtained.
4.	Craft an entrepreneurial strategy	4.1	A profile of the past that includes accomplishments and preferences in terms of life and work styles, coupled with a look into the future and an identification of what one would like to do is developed.
		4.2	Commitment, determination and perseverance; orientation towards goals; taking initiative and accepting personal responsibility; recognizing management competencies and identifying areas for development are determined.
		4.3	Written guidelines to obtain feedback that is solicited, honest, straightforward, and helpful but not all positive or negative are developed to facilitate reviews.
		4.4	Framework and process for setting goals which demand time, self-discipline, commitment, dedication and practice are developed.
		4.5	Goals established are specific and concrete, measurable, relate to time, realistic and attainable.
		4.6	Priorities, including identifying conflicts and trade-offs and how these may be resolved are established.
		4.7	Potential problems, obstacles and risks in meeting goals are identified.
		4.8	Specified action steps that are to be performed in order to accomplish goals are identified.
		4.9	The method by which results will be measured is indicated.

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4.10 Milestones for reviewing progress and tying these to specific dates on a calendar are established.

4.11 Sources of help to obtain resources are identified.

4.12 Evidence of the ability to review process and periodically revise goals is demonstrated.

RANGE STATEMENT

At this stage of the entrepreneurial process the entrepreneur must be able to conduct a self-assessment profile, examine the frame work for self assessment, develop a personal entrepreneurial strategy, identify data to be collected in the self-assessment process and learn about receiving feedback and setting goals.

Concepts associated to include:

- risk
- entrepreneurship
- macro-screening
- micro-screening
- competition
- wage employment

Influencing factors to include:

- market conditions
- markets – demand/supply
- global trends
- level of economic activities
- funding
- economic stability
- social stability
- resources availability

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The entrepreneur must be able to:

- understand the extreme complexity in predicting or aligning him/herself to specific careers in an environment of constant change
- determine the kind of entrepreneur he or she wants to become based on attitudes, behaviours, competencies, experience and how these fit with the requirements and demands for a specific opportunity
- evaluate thoroughly his or her attraction to entrepreneurship
- effectively develop personal plan
- utilize available information that will enhance his or her ability to achieve success

The entrepreneur may encounter setbacks if the planning process is not effectively pursued.

Pitfalls may include:

- proceeding without effective planning which may result in commitment to uncertainty
- commitment to a premature path with the desirability of flexibility can lead to disaster
- personal plans fail for the same reasons as business plans including frustration if the plan appears not to be working immediately and the challenges of changing behaviour from an activity-oriented routine to one that is goal oriented
- developing plans that fail to anticipate obstacles, and those that lack progress milestones and reviews

EVIDENCE GUIDE

Competency is to be demonstrated when the entrepreneur is able to undertake a personal entrepreneurial assessment exercise to determine if he or she possesses the necessary credentials to be a successful entrepreneur. This stage of the entrepreneurial process is critical since experience has shown that the founder is one of the deciding forces if the venture is to succeed and prosper.

(1) Critical Aspects of Evidence

The entrepreneur will be assessed by his/her action in developing an orchestrated plan in order to effectively pursue the business concept.

(2) Pre-requisite Relationship of Units

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- personal entrepreneurial profile systems
- effective management systems: marketing, operations/productions, finance, administration, law
- how to measure feedback
- the method of developing a personal plan
  and a business plan
- understanding the difference between entrepreneurial culture and management culture

Skills
The ability to:

- determine barriers to entrepreneurship
- minimize exposure to risk
- exploit any available resource pool
- tailor reward systems to meet a particular situation
- effectively plan and execute activities
- use computer technology to undertake assessments

(4) Resource Implications

The following resources should be made available:

Personal computer with access to the internet and appropriate software that will enable one to conduct the necessary analysis using the internet

(5) Method of Assessment

A useful method of assessment is to determine if the venture can stand up to the test of critical evaluation.

(6) Context of Assessment

This stage of the entrepreneurial process is assessed when comparisons are made between actual outcomes and plans/projections.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 1	
Communicate ideas and information	Level 1	
Plan and organise activities	Level 1	
Work with others and in team	Level 1	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 1	
Use technology	Level 1	

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ITIDAT1173A: Document operational procedures

Competency Descriptor: This unit deals with the skills and knowledge required to assess and document the operational procedures required to utilise the system and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine procedural areas to document	1.1	Existing technical and client user documentation is reviewed for currency against requirements.
		1.2	Operation of system is reviewed with development staff to confirm technical documentation is current.
		1.3	Possible areas where new and/or revised procedures are required are identified with system developers and/or client users.
		1.4	Specific procedures are identified and reviewed with frontline staff using techniques appropriate to the project or company requirements.
2.	Confirm design procedures	2.1	Design requirements are specified to meet the capabilities of the target audience taking into account ability, experience, skills and other attributes of the users.
		2.2	Range of display media is specified to meet specifications and user operational methods.
		2.3	Required operational procedures are developed using appropriate display material, tutorials, help files, manuals, search engines and other means.
		2.4	Proposed layout is sequenced in a manner that is logical to target audience.
		2.5	Proposed design of the procedures is submitted to client users and management for agreement.
3.	Develop operational procedures	3.1	Proposed design of the operational procedures is reviewed and all resources required are available.
		3.2	Development is planned and tasks and activities are assigned to individuals as necessary.

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		3.3 Manuals, help messages, tutorials and other instructional material are written as specified in the design in accordance with organisation standards and procedures.
4.	Validate documentation	4.1 Documentation is checked to cover all technical and client user operational procedures covered by the system.
		4.2 Scope and limitations of the system are defined.
		4.3 Documentation is checked to include all procedures identified in implementation plan.
		4.4 Documentation of procedures is prepared for sign-off/approval by higher authority.
		4.5 Documentation is distributed to the operational area in accordance with organisation standards and procedures.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to documenting operational procedures.

Documentation resources may include but are not limited to:

- paper based manuals
- on-line documents
- help messages
- tutorials
- Wizards

Documentation procedures may include:

- identifying user profiles
- completing a task breakdown
- step through work flow and procedures
- prototyping documentation

Documentation tools may include:

- Codestone, Codework, CodeMapper, DocWright
- Eztools, Clipboard Plus
- Visual Vision
- Filters such as Quadralay Webworks or MIF2GO

Standards may include:

- ISO standards
- standards from international professional bodies
- Occupational Health and Safety standards

Target audience that the procedures are written for will vary from inexperienced, low skill users through to proficient high level technicians. The method of presenting information and the media used will vary.

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Organisational standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- financial control mechanisms
- policies governing communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

EVIDENCE GUIDE

Assessment must confirm ability to manage the production of clear and easy to read procedures conforming with required standards for the utilisation of the specified system in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures
- identify and review existing and new procedures/documentation with the relevant personnel
- specify and confirm design requirements
- plan for the development and use appropriate resources effectively
- develop and produce operational procedures that is appropriate for target audience
- documentation meets quality and content specifications
- approved complete documentation is distributed to relevant parties
- carry out proper documentation and reporting procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- documentation standards and tools
- the client business domain
- the role of stakeholders and the degree of stakeholder involvement
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- current business practices in relation to preparing reports

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Underpinning Knowledge and Skills (Cont'd)

Skills
The ability to:

- solve problems
- participate in the development of strategic initiatives
- design requirements that are specified to meet the capabilities of the target audience taking into account ability, experience, skills, etc. of users
- analyse, evaluate and present information
- communicate effectively when specific procedures are identified and reviewed with frontline staff using techniques appropriate to the project or company requirements
- work in a teams
- contribute to solutions and goals of non-routine or contingency nature
- write comprehensive reports
- application of media development skills

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- project related documentation,
- staffing resources
- documentation tools

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 2	

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ITIGEN3123A: Recommend computer products and services

Competency Descriptor: This unit deals with the skills and knowledge required to access and apply computer product knowledge to provide advice with regard to computer hardware, software, availability, capabilities, product warranties and repairs.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Research and maintain knowledge of products/services	1.1 Detail knowledge of products/service offered by the enterprise is developed and maintained through accessing appropriate sources of information.
	1.2 Products/service features are correctly identified and evaluated.
	1.3 Knowledge and application of manufacturers' information and computer terminology including architectural structure, software and Internet requirements, memory and system configurations are developed.
	1.4 Operations of enterprise products and knowledge of service procedures are accurately demonstrated according to enterprise policies and procedures.
	1.5 Knowledge of relevant licensing and copyright laws are accurately demonstrated.
	1.6 Polices and procedures are established to provide safe and effective client service environment.
2. Recommend products/services	2.1 Clients' needs are accurately identified in terms of usage requirements, applications, desired features/capabilities and price range.
	2.2 Technical features and benefits are evaluated and are accurately conveyed to customers to assist purchasing decisions.
	2.3 Operation of specific products is demonstrated or explained to customers in a systematic manner as required.
	2.4 Cost/benefits evaluation for services is conducted and carefully explained to clients.

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3.	Advise on product warranties/ Service Level Agreements	3.1	Comparisons between product/manufacturers warranty terms are made and conditions for products/services warranties/ Service Level Agreements are clearly explained to clients.
		3.2	Individual product/service warranty/Service Level Agreements terms and conditions are confirmed by consulting enterprise/manufacturers product manuals or brochures and information is accurately conveyed to clients.
		3.3	Customers provided with a written copy of the Service Level Agreements/manufacturers' warranty terms and conditions for product/s purchased wherever possible, according to enterprise policies and procedures.
4.	Negotiate price and payment options	4.1	Enterprise recommended retail pricing for various brand/service options is accurately conveyed to clients.
		4.2	Individual product/service prices are negotiated where necessary according to enterprise policies and procedures to achieve a sale.
		4.3	Enterprise payment options are accurately conveyed to clients and a preferred option negotiated following enterprise policies and procedures.
5.	Advise on and arrange product service and repairs	5.1	Clients are questioned to determine nature of problem in accordance with customer service practices.
		5.2	Problem is accurately diagnosed in terms of operator/hardware/software faults by accessing manufacturers' information.
		5.3	Solutions are offered according to nature of problem, available product information and enterprise policies and procedures.
		5.4	Service/repair process is identified and accurately described to clients as required according to enterprise policies and procedures.
		5.5	Price and timelines for basic service/repairs identified and quoted to clients where applicable.
		5.6	Clients' details are identified and accurately transcribed to repair form, according to enterprise procedures and legal requirements.

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5.7 Item for repair are labelled and securely stored according to enterprise policies and procedures.

5.8 Clients are notified without undue delay on arrival/completion of service/repair.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to recommending computer products and services.

Enterprise range of computer products and accessories may include:

- software packages including word processing, spreadsheet, games, graphics, database,
- corporate/business applications
- entertainment and educational applications
- computers such as desktop - mini tower, full tower, integrated; laptop - dock able, non-dock able
- monitors of varying size, resolution, digital/analogue
- printers such as dot matrix, ink jet, laser, colour or mono
- scanners such as flat bed, hand held, sheet fed, colour or mono
- types of mouse such as bus, serial, button
- types of modems such as internal, external, varying speeds, fax
- operating systems
- computer accessories such as memory upgrades, video/soundcards, CD ROM, paper/printer
- supplies, cords/cables/fittings

Sources of information on products and services may include:

- enterprise or computer trade product manuals
- brochures
- computer magazines/books
- self tutorial software programs
- on- line help
- sales representatives
- trade shows
- seminars
- manufacturers product specifications
- customer feedback

Features of products may include:

- type
- brand options
- quality
- design features
- operating systems
- safety features
- price range

Variables may include:

- enterprise policies and procedures with regard to advising on/selling computer products and services
- size type and location of store
- enterprise service range may include product service and repairs, access to Internet service providers
- diagnosis of problems may occur face to face, by telephone or by correspondence
- clients with routine or special requests
- clients with special needs
- clients may include people from a range of social, cultural or ethnic backgrounds and physical and mental abilities

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Standards and procedures may include:

- maintenance guidelines and procedures
- industry regulations
- manufacturers' specifications
- financial control mechanisms
- procedures for communication with clients
- dispute resolution procedures
- modification procedures
- processes for determining size and cost of solutions

Hardware may include IT equipment of all types:

- workstations: PCs, IBM, Compaq, Hewlett Packard, Sun, Dell, Gateway 2000, SGI, Sun Microsystems,
- bridges: 3Com, Compaq, CISCO, IBM
- modems; analog, cable, ISDN, DSL
- servers: Acer, Apple, Compaq, Dell, Gateway 2000, Hewlett-Packard, IBM, Macintosh, NEC, SGI, Sun Microsystems, Unisys
- network cards: Adaptec, ARTIC, Compex, SMC
- switches: 3Com, Accton, Cabletron, CISCO, D-Link, Farallon, Hewlett-Packard, Intel, Network Technologies
- hubs & repeaters: 3Com, Compaq, CISCO, Accton, Asante, D-Link, Farallon, Hewlett-Packard, Intel, Omnitron,
- routers & gateways: 3Com, CISCO, D-Link, Intel,
- file & print servers: AcerAltos, Aerocomm, AlphaServer, Dell, D-Link, Hewlett-Packard, IBM, NEC, Sun Microsystems

Service Level Agreements may include:

- business processes and requirements
- clearly specified and quantified service levels
- identified evaluation or audit of service levels
- workload and performance considerations
- expectations regarding servicing
- penalties

Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory requirement
- vendor requirements
- ergonomic requirements

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to recommend computer products and services in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- continually updating and applying product knowledge to provide comprehensive advice to clients and colleagues, including technical information
- consistently applying enterprise policies and procedures and industry codes of practice in regard to sales/client service procedures
- advising clients and informing other team members of quality, design features, benefits and operation/performance characteristics of a range of computers and services
- advising on stock availability, warranties and price/payment options
- applying problem solving strategies to assist client with operator/hardware/software faults
- advising on, negotiating and arranging computer product services and repairs in accordance with enterprise policy and procedures
- compliance with Occupational Health and Safety requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- customer service practices
- methods of dealing with special needs/requests of clients
- client requirements/complaints
- manufacturers technical information/specifications for a range of computer hardware and accessories
- the Internet, including hardware/software requirements and access to service providers
- range of computer operating systems and software options and packages
- enterprise range of computer service and repair capabilities
- network system
- marketing and sales
- products/services information sources
- client services policies and procedures
- help desk procedures and practices
- warranties and Service Level Agreements
- legislation and statutory requirements, including consumer law
- industry codes of practice
- Occupational Health and Safety legislation/regulations/codes of practice

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Underpinning Knowledge and Skills (Cont'd)

Skill
The ability to:

- communicating ideas and information, including methods of establishing rapport with clients using honesty and tact
- work with others and in teams
- handle clients with special needs, including difficult or abusive customers
- solve problems, including assisting clients with operator/hardware/software faults
- negotiate effectively
- use and apply technology, including operational features and operating/demonstrating range of computers and accessories
- collect, analyse and organise information from a variety of sources
- apply of mathematical ideas and techniques relating to computer hardware and software products
- advise/negotiate warranty and payment options

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant sources of product information
- appropriate range of computers and computer software/accessories
- range of clients requirements
- enterprise policies and procedures
- relevant Occupational Health and Safety standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIDAT1513A: Assists with analysis of emerging technology

Competency Descriptor: This unit deals with the skills and knowledge required to apply technical knowledge in preliminary analysis of emerging technology and applies to individuals operating in the information and communication industry.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Liaise with vendors, training providers and the Information Technology Industry	1.1 Information sources are determined in line with organisation policies.
	1.2 Vendors are determined in accordance with organisation guidelines.
	1.3 Information on technology is documented according to its suitability to organisational requirements and continually updated.
2. Prepare and present reports as required by management	2.1 Future requirements are obtained from management.
	2.2 Installation requirements are determined in line with organisation policies.
	2.3 Reports are prepared in line with budget, time frame and organisational limitations.
	2.4 Reports are presented to supervisor/management.

RANGE STATEMENT

This unit applies to the activities associated with the essential operations linked to assisting with the analysis of emerging technology.

Organisational variables may include but are not limited to:

- security procedures
- contracting arrangements relating to Information Technology purchasing
- budgeting and strategic plans
- time lines
- budgetary constraints

Technology and platform may include:

- operating systems
- compilers
- software
- hardware
- new procedures
- upgrades

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Information sources may include but are not limited to:

- vendor seminars
- briefing conferences
- Internet – portals, chat room, lists and on-line trade magazines
- Information Technology on-line consortiums
- electronic media and communications
- liaison with experts
- product demonstrations
- industry trade fairs and conferences

EVIDENCE GUIDE

Assessment must confirm the ability to apply technical knowledge in the preliminary analysis of emerging technology according to organisational requirements or practices in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects of Evidence

It is essential that competence is observed in the following aspects:

- apply organisational quality procedures and processes
- collect, evaluate and report information on new technologies
- use effective consultative processes
- interact with key players and industry experts
- monitor and maintain up to date records on industry practices
- determination of requirements from relevant sources
- carry out proper documentation procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry and technology information sources
- current business practices in relation to preparing reports
- components of the business planning process relevant to the development of IT business solutions
- current industry accepted hardware and software products with broad knowledge of general features and capabilities
- vendor product directions
- client business domain
- quality assurance practices
- information gathering techniques
- industry networks
- key individuals and organisations within the IT industry

Skills
The ability to:

- solve problems in a range of contexts
- demonstrate project planning skills in relation to scope, time, cost, quality, communications and risk management
- participate in the development of strategic initiatives
- communicate effectively
- analyse, evaluate and present information
- contribute to solutions and goals of a non-routine or contingency nature
- facilitate group discussion when transferr collecting information and gaining conser concepts
- convey complex and abstract concepts and information

(4) Resource Implications

To demonstrate this unit of competence the candidate will require:

- workplace (actual enterprise or simulated)
- journals and industry/professional associations newsletters
- internet

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

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(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Simulated activities must closely reflect the workplace.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1183A: Prepare structured training for clients

Competency Descriptor: This unit deals with the skills and knowledge required to organise and prepare structured training for client users of IT systems.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Review the training needs	1.1	Advice from appropriate personnel on the specific training needs is identified and sought.
		1.2	Training needs are reviewed with appropriate personnel to ensure that training requirements are fully understood and identified.
		1.3	Training objectives are developed that reflect the training needs and these are agreed with appropriate personnel including client users.
		1.4	Training is either developed in-house or brought externally.
2.	Plan and document training session	2.1	Performance criteria from the training outcomes is clearly stated and explicitly detailed where appropriate.
		2.2	Training session is outlined following a logical sequence in the training session steps.
		2.3	Appropriate training method(s) are selected for trainee outcomes, trainee characteristics and availability of equipment and resources.
		2.4	Methods for trainees are identified to practise learning outcomes.
		2.5	Provision for monitoring trainees' progress is made.
		2.6	Method for collecting evidence required for assessment is stated.

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3.	Arrange location and resources	3.1	Approval from appropriate personnel for resources required for training is identified and sought.
		3.2	Suitable locations for the training are arranged.
		3.3	Equipment, tools and other resources required are organised to be available as needed.
		3.4	Arrangements are made with all parties who are required to help in the training session or in the follow-up to the training session.
		3.5	Training environment is arranged so that it is safe and accessible and is laid out in an appropriate fashion for the type of training delivered.
4.	Notify trainees	4.1	Trainees are notified of the time and place of the training session and of any pre-requisite activities.
		4.2	Trainees and other appropriate personnel are identified and are notified of arrangements for travel, parking, lunches, breaks, etc.
		4.3	Trainees' supervisor(s) are notified of the time and place of the training and of any other requirements for the training session.
		4.4	All involved are notified of the purpose of the training.

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RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to preparing structured training for clients.

Location of the training may include but is not limited to:

- off-site training rooms
- in-house training rooms
- on-line desktop training environment
- a work space not designated for training
- normal workplace

Training methods may include but are not limited to:

- lectures
- tutorials
- self paced learning
- videos
- computer based training
- audio tapes
- books
- on-the-job training

Size of training group:

- training may be on a one to one basis
- small group of trainees/workers
- medium-size group
- large group

Trainees' characteristics may include:

- new client users with minimal IT knowledge
- advanced client users requiring detailed information
- client non-users requiring general overview, directions and capability of the IT solution

Training needs may include

- induction training
- refresher course
- awareness of new developments
- in-depth training

Degree of training may include:

- certified training
- formal training
- informal training
- suitable level for training

OH and S Standards may include:

- company requirements
- statutory requirements
- vendor requirements

Organisational Standards may be:

- based upon formal, well-documented methodologies
- non-existent

Ergonomic and environmental factors must be considered during the demonstration of this competency.

For training delivery purposes best practice examples from industry will be used

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to prepare structured training for clients in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- assessment must confirm sufficient knowledge of interpreting training needs
- assessment must confirm the ability to meet trainee training requirements by clearly and coherently identifying trainee-learning objectives in a logically sequenced training session plan
- assessment must confirm the ability to manage and administer a program designed for a group of people and the associated timings, scheduling and administration
- compliance with organisational and industry standards, policies and procedures

(2) Pre-requisite Relationship of Units

Pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- principles of adult education
- principles of learning styles
- training delivery methodologies with detail in some areas
- development of basic training resources
- use of training resources
- instructional methodologies
- learning theories
- training evaluation methods
- learning objectives
- lesson planning
- training needs analysis
- assessment strategies
- coaching and mentoring techniques
- subject material to be delivered
- application of information and communication technology in training
- organisation policies and procedures
- industry standards

Skill
The ability to:

- apply problem solving skills
- prepare training resources
- communicate effectively
- analyse, evaluate and present information
- work in team
- plan and deliver training
- apply group facilitation and presentation skills
- negotiate skilfully
- produce reports
- apply change management skills
- maintain the continuity of IT operations and business functions
- provide excellent customer service
- handling difficult clients
- resolve conflicts
- analyse training needs

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- course outlines, lesson guides and training resources
- training needs and trainee characteristics
- appropriate training environment
- enterprise policies and procedures
- industry standards and codes of practice
- relevant health and safety standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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BSBFLM0093A Support continuous improvement systems and processes

Competency Descriptor: This unit deals with the skills and knowledge required for the frontline supervisor to have an active role in managing the continuous improvement process in achieving the organisation's objectives.

Competency Field: Business Management Services

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Implement continuous improvement systems and processes	1.1 The manager actively encourages and supports team members to participate in decision making processes and to assume responsibility and authority.
	1.2 The organisation's continuous improvement processes are communicated to individuals/teams.
	1.3 The manager's mentoring and coaching support ensures that individuals/teams are able to implement the organisation's continuous improvement processes.
2. Monitor, adjust and report performance	2.1 The organisation's systems and technology are used to monitor progress and to identify ways in which planning and operations could be improved.
	2.2 Customer service is strengthened through the use of continuous improvement techniques and processes.
	2.3 Plans are adjusted and communicated to those who have a role in their development and implementation.
3. Consolidate opportunities for further improvement	3.1 Team members are informed of savings and productivity/service improvements in achieving the business plan.
	3.2 Work performance is documented and the information is used to identify opportunities for further improvement.
	3.3 Records, reports and recommendations for improvement are managed within the organisation's systems and processes.

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RANGE STATEMENT

The scope and context of this unit of competence allow for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment.

The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace, which may include:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

NVQJ level 3, frontline supervisors will normally be engaged in a workplace context where they:

- engage in short term planning within the department's business plans. For example, prepares a weekly schedule of outputs and/or outcomes to be achieved
- take responsibility for own outputs in work and learning. For example, assesses own performance and identifies the competencies which need to be upgraded/developed
- take limited responsibility for the output of others. For example, provides coaching support to assist individuals meet their performance requirements
- demonstrate some relevant theoretical knowledge. For example, explains the purpose of Key Performance Indicators to others
- perform a defined range of skills, usually within known routines, methods and procedures and within known time constraints. For example, provides services to internal customers within an agreed schedule
- apply known solutions to a variety of predictable problems. For example, within the organisation's standard procedures considers the options and, using some discretion and judgement, selects the preferred action to rectify faulty service to a customer
- interpret available information, using some discretion and judgement in work responsibilities. For example, interprets the continuous improvement processes, procedures and documentation used by the team and decides how to apply them to own work function

Frontline supervisors at this level III normally operate in a relatively simple and routine workplace environment in which they use the organisations:

- goals, objectives, plans, systems and processes
- business and performance plans
- access and equity principles and practice
- ethical standards
- quality and continuous improvement processes and standards
- defined resource parameters

Technology will be:

- that readily available in the workplace and will be appropriate to frontline management's roles and responsibilities

Customer service may be:

- internal or external, to existing or new clients

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OHS considerations may include:

- implement and monitor participative arrangements for the management of OHS
- delegation and reporting complies with requirements of OHS legislation
- the continuous improvement processes of any OHS management system are implemented and monitored

EVIDENCE GUIDE

The critical aspects, underpinning knowledge and skills identified must be demonstrated to confirm competence for this unit.

(1) Critical Aspects of Evidence

- adjusts plans, processes and procedures to improve performance
- supports others to implement the continuous improvement system/processes
- identifies opportunities for further improvement

(2) Pre-requisite Relationship of Units

Pre-requisites for this unit are:

- BSBFLM0023A Support leadership in the workplace
- BSBFLM0043A Participate in work teams
- BSBFLM0053A Support operational plan
- BSBCMN0103A Deliver and monitor a service to customers
- BSBCMN0113A Maintain workplace safety.
- BSBCMN0123A Support innovation and change
- BSBFLM0113A Support a workplace learning environment

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of

- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, and industrial relations
- the principles and techniques associated with:
  - continuous improvement systems and processes, benchmarking, and best practice
  - the benefits of continuous improvement
  - the quality approaches which the organisation may implement
  - the methods that can be used in continuous improvement
  - the barriers to continuous improvement

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Skills
The ability to:

- access and use workplace information
- use communication skills including researching, analysing and interpreting information from a variety of people and reporting
- monitor and evaluate systems, processes and procedures
- gain the commitment of individuals/teams to continuous improvement
- Consolidate opportunities for improvement
- deal with people openly and fairly
- use consultation skills effectively
- use coaching and mentoring skills to provide support to colleagues
- relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

(4) Resource Implications

The following resources should be provided:

- access to appropriate documentation and resources normally used in the workplace

(5) Method of Assessment

In order to achieve consistency of performance, evidence should be collected over a set period of time, which is sufficient to include dealings with an appropriate range and variety of situations

(6) Context of Assessment

Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement

Assessment must take account of the endorsed assessment guidelines in the Business Services Competency Package

Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment

Assessment should reinforce the integration of the Critical Employability Skills and the Business Services Common Competencies for the particular NVQ Level.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIPRG2163A: Develop client user interface

Competency Descriptor: This unit deals with the skills and knowledge required to design a user interface which integrates with front-end applications.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Prepare design for interface	1.1 Requirements and other documentation are reviewed to specify processes involving the interaction of the user with the application.
	1.2 Environment to be used for system is considered and the impact that may place on user interface design is considered such as Windows based, Web based and specialised equipment like ATMs.
	1.3 Organisational standards are reviewed and the need for similar look and feel to systems already in use is considered.
	1.4 Data presentation formats are modelled and possibly prototyped in readiness for user review in accordance with requirements.
	1.5 Data Query and report formats are modelled in accordance with requirements.
	1.6 Approval for the proposed interfaces to be used is obtained from the client.
2. Design and document the system user interface	2.1 Menu structures are designed according to client specifications and acceptance criteria.
	2.2 Screen dialogues are designed according to client specifications and acceptance criteria.
	2.3 Batch procedures are designed according to technical specifications and acceptance criteria.
	2.4 On-line Help formats are designed along with any tutorials specified in accordance with enterprise guidelines and procedures.

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2.5 User interface and style for screens, reports and forms are developed according to client specifications and acceptance criteria.

2.6 User design philosophy is clearly and coherently documented in accordance with enterprise guidelines and procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to developing client user interface.

Client may include:

- department within an organization
- business requiring an e-commerce solution
- third party
- the relationship and ease of access will vary depending on the client

Design principles may vary in relation to organizational requirements

Ideally the interface may:

- create an intuitive (few directions/instructions needed) system
- interpret user demands (clicks etc) consistently
- anticipate user error
- focus on content
- provide feedback to users
- distinguish between actions
- allow speed control and be designed for target audience

Administration system is required to, depending on the size of the project:

- maintain order and manage the amount of information being processed by the project member/s

Existing architecture may vary from:

- systems based around mainframes to networks of mid-range machines and/or desktop PCs

Networks may be local, wide or based on the Internet

Documentation and reporting may include:

- audit trails, naming standards, version control, project management templates and report writing styles

Information gathering processes may have associated templates

Consulting techniques may include:

- interviews, surveys, chat rooms, focus groups, questionnaire, surveys, soft system methodologies, JAD

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OH and S standards:

- as per company, statutory and vendor requirements

Ergonomics and environmental factors must be considered during the demonstration of this competency

Quality benchmarks:

- documentation symbols and conventions for data, program and system flowcharts, program network charts and systems resources charts
- guidelines for the documentation of computer-based application systems
- user documentation and cover information for consumer software packages
- guide to the development of application software – On-screen documentation

Analysis techniques may include:

- gap analysis, urgency and impact, statistical and a range of current requirements gathering methodologies

Design methods/tools may vary from:

- the traditional design development processes with little or no formalization to a very well structures approach and client requirements i.e. style guides etc

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to develop client user interface in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of the basic elements of a system and how to produce specifications
- demonstrate the ability to design user interface which integrates with front-end applications
- demonstrate the ability to meet technical requirements by successfully preparing the development environment
- ensure that all issues relating to the logical progression of information/content were considered and the nature of functions are apparent and appropriate choices made given the business objectives and client requirements and
- technical specifications and the design solution selected meet requirements
- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- current industry accepted hardware and software products
- general features and capabilities of hardware and software products
- current industry accepted user interfaces
- general features and capabilities of user interface
- Graphical User Interface
- Interface design
- module functionality
- preparing designs and documenting the system user interface
- current industry design principles
- front-end systems
- ergonomics

Skills
The ability to:

- solve problems
- communicate effectively
- analyse, evaluate and present information t
- write reports
- apply group facilitation and presentation skills in gaining consensus on concepts

(4) Resource Implications

To demonstrate this unit of competence the candidate will require access to:

- workplace (actual enterprise or simulated)
- usability tools and documents detailing:
  - design specifications
  - organizational standards for documentation and version control
  - project management process and hierarchy
  - usability test plan
  - agreed usability metrics

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

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(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET1193A: Deliver structured training for clients

Competency Descriptor: This unit deals with the skills and knowledge required to deliver structured training.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Prepare trainees	1.1	Objectives of the training session are explained and are discussed with the trainees.
		1.2	Sequence of activities to be followed in the training session is explained to the trainees.
		1.3	Trainees are made aware of the work application of the skills or job being taught.
		1.4	Any barriers to performance of the skills or job being taught are identified and discussed.
		1.5	Assessment process is explained to the trainees.
2.	Instruct trainees	2.1	A systematic approach is taken to instruction, taking into account: explanation, demonstration, review, trainee explanation, trainee demonstration and feedback.
		2.2	Instruction process is revised and is modified as necessary to meet the trainees' learning needs.
		2.3	Trainees are encouraged by positive comments from the trainer.
		2.4	Feedback during instruction is designed to help trainees learn from their mistakes.
		2.5	Trainees are encouraged and guided to evaluate their own performance and diagnose it for improvement.

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3.	Provide opportunities for practice	3.1	Practice opportunities are provided according to the specific learning situation and training objectives.
		3.2	Constructive feedback and reinforcement are provided during practice.
		3.3	Trainees' readiness for assessment is monitored.
4.	Confirm trainee has reached required standard of performance	4.1	Evidence of satisfactory performance by the trainee is collected in accordance with the training session plan.
		4.2	The trainee is advised that he/she has reached the required standard of performance.
		4.3	Other appropriate personnel are advised that the trainee has reached the required standard of performance.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to delivering structured training for clients.

Location of the training may include but is not limited to:

- off-site training rooms
- in-house training rooms
- on-line desktop training environment
- a work space not designated for training
- normal workplace

Training methods may include but are not limited to:

- lectures
- tutorials
- self paced learning
- videos
- computer based training
- audio tapes
- books
- on-the-job training

Size of training group:

- training may be on a one to one basis
- small group of trainees/workers
- medium-size group
- large group

Trainees' characteristics may include:

- new client users with minimal IT knowledge
- advanced client users requiring detailed information
- client non-users requiring general overview, directions and capability of the IT solution

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Training needs may include

- induction training
- refresher course
- awareness of new developments
- in-depth training

OH and S Standards may include:

- company requirements
- statutory requirements
- vendor requirements

Ergonomic and environmental factors must be considered during the demonstration of this competency.

Degree of training may include:

- certified training
- formal training
- informal training
- suitable level for training

Organisational Standards may be:

- based upon formal, well-documented methodologies
- non-existent

For training delivery purposes best practice examples from industry will be used

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to deliver structured training for clients in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- assessment must confirm sufficient knowledge of training delivery methodologies
- assessment must confirm the ability to meet trainee-training requirements by clearly and coherently delivering training in a logically sequenced manner, which meets the trainees' learning needs
- compliance with organisational and industry standards, policies and procedures

(2) Pre-requisite Relationship of Units

Pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- principles of adult education
- principles of learning styles
- training delivery methodologies with detail in some areas
- development of basic training resources
- use of training resources
- instructional methodologies
- learning theories
- training evaluation methods
- learning objectives
- lesson planning
- training needs analysis
- assessment strategies
- coaching and mentoring techniques
- subject material to be delivered
- application of information and communication technology in training
- organisation policies and procedures
- industry standards
- system's current functionality n details
- client business domain

Skill
The ability to:

- use training resources
- apply problem solving skills
- prepare training resources
- communicate effectively
- analyse, evaluate and present information
- work in team
- plan and deliver training
- transfer technical knowledge
- apply group facilitation and presentation skills
- negotiate skilfully
- produce reports
- apply change management skills
- maintain the continuity of IT operations and business functions
- provide excellent customer service
- handling difficult clients
- resolve conflicts
- analyse training needs
- impart knowledge

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- course outlines, lesson guides and training resources
- training needs and trainee characteristics
- appropriate training environment
- enterprise policies and procedures
- industry standards and codes of practice
- relevant health and safety standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

Competence in this unit needs to be assessed through observation of training delivery on a number of occasions. If this is not possible then a single observation should be supported by supplementary evidence from a supervisor or discussions with trainees.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 2	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 1	
Solve problems	Level 2	
Use technology	Level 2	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIPRG0713A: Implement configuration management

Competency Descriptor: This unit deals with the skills and knowledge required to implement administrative and technical procedures throughout the software and documentation life cycle.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify and clarify configuration management requirements	1.1	Identification standards for the naming and version control of software and documentation are distributed to all relevant developers and team members.
		1.2	The tools and procedures for the required level of integration into the programming environment are identified.
		1.3	Responsibilities for configuration management within the project and for ongoing support including approval of changes are identified and responsible parties are aware of their roles.
		1.4	The point when items are subjected to configuration control is identified with all relevant developers and team members.
2.	Employ appropriate control mechanisms	2.1	The method for identification and recording of change requests in line with organisational requirements is identified and maintained during development process.
		2.2	The evaluation criteria and process for approval of change requests taking into account organisational authorisation requirements are employed.
		2.3	Other management control criteria such as security and access and non-duplication of names are employed according to organisational requirements.
		2.4	Necessary audit trials and alerts for variations or non-conformance are continuously maintained during development.

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3.	Implement monitoring mechanisms	3.1	Mechanisms to identify the status of software throughout the software life cycle are continuously maintained.
		3.2	The development and maintenance of records and status reports required to show the history of baselines and their links to back-ups are documented.
		3.3	The level of detail required in the status reports, and who the target audiences are, meets the configuration management procedures, appropriate standards and organisational requirements.
		3.4	The configuration management is integrated into general project management processes for monitoring and control purposes.
4.	Manage release of product	4.1	The physical and functional completeness of items for the purpose of release are determined with all relevant developers and team members.
		4.2	The requirements for formal control of software products and documentation are identified and implemented.
		4.3	The policies for retention of baseline/ master copies taking into account safety and security, legislative requirements and organisational policies are maintained.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to implementing configuration management.

Documentation requirements may include:

- documentation for version control may follow ISO standards
- audit trails, naming standards, version control, project management templates and report writing styles will vary according to organisational approach
- information gathering processes may have associated templates

Application under development can:

- vary from large system that will impact thousands of users in a large organisation
- one used by a handful of people
- also vary in complexity, size and operational characteristics

Quality process:

- Some organisations may be quality certified and have well document standards for addressing quality while others will not.

Development methods/tools will vary from:

- the traditional systems development life cycle with little or no formalisation
- to a very well structured CASE tool

Software configuration tools may include:

- PVCS Version Manager
- PVCS Version Manager PLUS
- PVCS Configuration Builder
- Visual SourceSafe
- Version Stamper
- Baseline +Plus
- Version +Plus
- Clear Case
- Continuus/CM
- SCCS
- RCS
- Visual SourceSafe
- Source Integrity
- Team Ware
- CVS

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EVIDENCE GUIDE

Competency is to be demonstrated by implementing configuration management in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- assessment will confirm knowledge of quality processes, audit trials and version control
- assessment will confirm the ability to implement and maintain reliable and valid configuration management procedures for technical and administrative procedures for use during the software life cycle
- candidate ability to track changes to all software components
- demonstrated evidence of support of parallel development of different components
- evidence of control of the entire project and its evolution over time (releases and variants)
- management of the approval of changes (promotion process)

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- software/system development methodologies
- configuration management requirements
- quality assurance and quality processes
- project planning methodologies and tools
- control and monitoring mechanisms
- bench marking methodologies
- developing administrative and technical procedures
- project planning and management
- formulating software size models and size estimates
- software and documentation life cycle
- CASE tools
- industry standards
- organisational policies and procedures
- Occupational Health and Safety requirements

Skills
The ability to:

- determine system requirements
- communicate effectively
- solve problems
- establish procedures and guidelines
- apply configuration management skills
- analyse, evaluate and present information
- produce reports and documentations
- apply monitoring and control mechanisms
- apply group facilitation and presentation skills
- negotiate skilfully
- produce reports
- work safely
- apply project planning skills
- apply research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in software development methodologies
- use estimating skills to show the history of baselines and their links to back-ups are documented
- undertake function point analysis

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant technology
- project and design plans
- established configuration policies
- documentation and quality requirements
- relevant tools and human resources
- organisational policies, procedures and requirements
- industry standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET1493A: Assist with policy development for client support

Competency Descriptor: This unit deals with the skills and knowledge required to contribute to the formulation of client support procedures to be included within organisational policy.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Determine support issues	1.1	Clients are contacted on a regular basis to ensure needs are being met in accordance with enterprise guidelines and procedures.
		1.2	Client feedback is documented in line with enterprise guidelines and procedures.
		1.3	Client issues are analysed and analysis is forwarded to management following the correct procedures.
		1.4	Results of network performance systems are analysed and analysis is forwarded to management in accordance with established guidelines.
2.	Determine management requirements	2.1	Organisational strategic plans are accessed in accordance with enterprise guidelines and procedures.
		2.2	Current client policies are accessed in line with enterprise guidelines and procedures.
		2.3	New services, hardware and software requirements are assessed for future projects.
3.	Provide recommended changes for client support policy	3.1	Report recommending changes in policies and documenting the impact on clients is prepared in a clear and concise manner.
		3.2	The report is forwarded to supervisor following the correct procedures.
4.	Update documented client support policy	4.1	Policies are amended to meet requirements in accordance with enterprise guidelines and procedures.
		4.2	Policies are issued to all areas of the enterprise in line with established guidelines.
		4.3	Policy updates are maintained in line with enterprise guidelines and procedures.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to assisting with policy development for client support procedures.

Client support policies may include but are not limited to:

- client service standards
- complaints handling policy
- client liaison policy
- security procedures
- logged call procedures
- Occupational Health and Safety legislation
- preventive maintenance and diagnostic policy
- disposal policy
- disaster recovery plan
- virus removal
- contracting arrangements relating to Information Technology purchasing

Client issues may include:

- maintenance
- upgrading of current system
- implementation of new solutions
- access to system
- security
- system performance
- file maintenance
- memory
- disaster recovery
- back–up procedures

Client may include:

- department or unit in the enterprise
- entire enterprise
- external customer
- existing client
- new client

Organisational strategic plan may include:

- objectives and goals
- core values
- future developments
- target market
- policies

Enterprise guidelines and procedures may include:

- customer service requirements
- reporting and documentation procedures
- guidelines for accessing and modifying information
- guidelines on disclosure and confidentiality

Impact on clients resulting from changes may include:

- cost
- access to support
- favorable response when required
- reliability of service

Recommended changes for client support policies may include:

- extent of maintenance support coverage
- improving customer service requirements
- contracts on purchasing
- hardware and software supported by enterprise

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to assist with policy development for client support procedures in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of client support procedures, network components, management and maintenance
- determine client issues, needs and feedback through interactive communication
- evaluate and analyse technical information and provide comprehensive analysis and recommendations
- contribute to the formulation of client support procedures, taking account of existing policy, procedures and emerging client needs
- provide and maintain policy documentation in accordance with established procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- organisational guidelines on network maintenance and administration
- network systems
- systems supported by the enterprise
- organisational policy on access and security
- organisational strategic plan
- current trends and issues in Information Technology
- enterprise client support policies
- enterprise guidelines and procedures
- Occupational Health and Safety requirements
- industry standards
- industry codes of practice
- client service standards
- hardware and software components

Skills
The ability to:

- interpret technical manuals
- provide one to one instruction
- use questioning and active listening to convey and clarify complex information
- analyse, evaluate and present information
- read general and technical workplace documentation
- write technical reports
- provide advise
- communicate effectively
- provide solutions to problems

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- client support policy
- relevant technical documentation and strategic plans
- enterprise guidelines and procedures

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 2	

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ITIWEB1934A: Ensure privacy for users

Competency Descriptor: This unit deals with the skills and knowledge required to ensure that users personal information is only used or disclosed for the purposes that its collection was undertaken and that all reasonable steps are taken to maintain the privacy and confidentiality of information that has been collected, used and/or disclosed.

Competency Field: Information Technology

ELEMENT OF COMPETENCY	PERFORMANCE CRITERIA
1. Apply privacy legislation	1.1 Legislations governing privacy has been distributed and made available in accordance with enterprise requirements.
	1.2 Elements of the legislations, which are applicable to the e-business model being developed, are identified and plans are prepared to meet their requirements.
	1.3 Clear and consistent privacy policies and guidelines are obtained and applied to protect user privacy.
	1.4 Privacy policies and guidelines are prominently published on websites and intranets, and made available to all people, including users who want or need to view them.
2. Apply privacy principles to websites	2.1 Relevant data is collected and during the collection the individual is fully informed of who is collecting the information, why it is being collected and to which organization it is normally disclosed method is legal.
	2.2 Personal user information is only used or disclosed for the primary purpose for which it was collected unless the consent of the individual, about whom the records are kept, has been obtained.
	2.3 Reasonable steps are taken to ensure that personal information that is collected is accurate, complete and up to date.
	2.4 Procedures are developed to protect personal information from misuse, unauthorised access or disclosure and information that is no longer needed is effectively destroyed or de-identified.
	2.5 A privacy policy is published and available to users.
	2.6 Procedures are established to ensure individual users can, with certain exceptions, gain access to and update all personal information held on them upon request.

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		2.7 Wherever lawful and practicable individuals must have the option of not identifying themselves when entering transactions with the organisation.
		2.8 Information processes ensure transborder data flow meets legislative requirements.
		2.9 Implemented processes do not collect sensitive information on individuals unless the individuals have consented, the collection is required by law, the collection prevents or lessens imminent threat to life or health of an individual or if the non profit collection guidelines are met.
3.	Limit access to equipment that provides access to users personal information	3.1 Guidelines and procedures to limit the number of personnel who have access to equipment that stores, transmits or displays personal information are developed and applied.
		3.2 The technical environment is configured to protect privacy in accordance with enterprise guidelines and procedures.
		3.3 Records are locked in secure storage facilities in accordance with enterprise guidelines.
		3.4 Screens and printers are positioned to negate unintended observation of private personal information.
4.	Develop data storage and handling procedures	4.1 Sensitive data that is stored is to be encrypted and authentication procedures are employed to ensure that only authorised people have access to the information.
		4.2 Policy relating to direct copying of files is distributed and made available in accordance with enterprise guidelines.
		4.3 Centrally stored data is always erased before being reassigned or deleted.
		4.4 Secure disposal of unwanted but useable storage media and records is applied.
		4.5 Storage media is always completely erased before selling or disposing following the established guidelines.
		4.6 Data archiving periods and conditions are clearly defined in accordance with enterprise guidelines.
5.	Protect data being communicated over external networks	5.1 All sensitive information being transmitted is encrypted following established procedures.
		5.2 Rigorous encryption key management procedures are consistently applied.

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5.3 Access to network management functions is restricted in accordance with enterprise guidelines and procedures.

5.4 Attachments of devices to the network are controlled and restricted if necessary in accordance with enterprise guidelines.

5.5 Inbuilt security controls and message labels in software are used as necessary following the correct procedures.

RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to ensuring privacy for users.

Operating systems may include:

- Win 95/98/2000
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC
- VMS
- Mac OSX
- Linux
- Netware

Hardware may include Information Technology equipments of all types such as:

- work stations, PCs
- networks
- remote Sites
- servers
- tempest measurement equipment such as ECM and ESD detection devices
- tempest suppression and shielding equipment

E-commerce models are changing all the time and the above are just an example of possible models.

Privacy policy may include:

- information on the types of information held
- the purpose of holding the information
- how it is collected
- the approved uses and disclosure of information held

E-business encompasses how organisations:

- structure themselves
- capture information
- manage their workers
- relate and partner with other organisations and groups to achieve effective functioning, efficient operations and cultural shifts

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Knowledge economy involves all individuals participating on-line for: • professional or personal research and learning • communicating with friends or associates • the pursuit of leisure activities The knowledge economy is broader than on-line participation and includes knowledge workers and organisations and recognises the value of life long learning and the need to capture knowledge within organisations to ensure effective functioning	Privacy principles may deal with: • collection of data • use and disclosure of data • data quality • data security • openness • access to and correction of data • anonymity • trans-border data flow, • dealing with sensitive information

Software may include:

- Internet Watch
- SSH
- AS-aware
- Protector
- Enonymous Adviser
- Secure
- Thundersafe
- NCode
- Gate Keeper
- QN Password
- CS Password
- PassGen
- Hypersafe 2000
- Information Keeper
- Watchman
- Device Lock
- Computer Control
- Black Ice Defender
- ShredX
- SoftByteSecurity Pass
- Cryptware 2000
- GUIDESX
- AdvaCrypt Suite
- LK Encoder
- Interscope Black Box
- Crypto Mite

E-commerce models include any kind of business-related transaction conducted with the assistance of electronic tools across and within organisations or with individual customers. May include:

- Brochure Site
- Customer Service Site
- Real Time Site
- Quote Aggregator
- Insurance Mall
- Direct Channel
- Virtual Carrier
- Quote Mall
- Agent Mall
- Consumer Auction
- Carrier Auction
- Time Limited Information
- Investor Relations
- Technical Support
- Pre Sales Support and Corporate Awareness
- Proprietary Standard Promotion

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to ensure privacy for users in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstrate knowledge of legislations governing privacy and principles of privacy
- demonstrate the ability to implement and maintain the legal requirements of privacy legislation
- development of mechanisms and procedures to ensure confidentiality and security of information
- ensuring that users privacy is protected through site design, developing and applying guidelines, policies and procedures that meet the minimum standard required by the national and other privacy legislation
- apply user privacy protection measures consistent with the law and the privacy principles
- develop data handling and storage procedures
- ensure security of electronically communicated information
- apply organisational quality procedures and processes
- perform all tasks in accordance with standard operating procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- website architecture
- server operating systems
- national legislations governing privacy
- server access security procedures
- storage media security systems
- project management
- stakeholder communication
- legal requirements

Skills
The ability to:

- analyze web site
- transfer secure file
- use information architecture
- use version back up and storage
- use secure data base management
- use office space management
- use network management

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(4) Resource Implications

To demonstrate this unit of competence the candidate will require access to:

- workplace (actual enterprise or simulated)
- e-business website
- technical architecture documentation for reviewing configuration of technical environment
- national and other privacy legislations

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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BSBSBM0054A: Develop business plans

Competency Descriptor: This unit deals with the research and development of an integrated business plan for achieving business goals and objectives. It is suitable for setting up or existing micro and small businesses or a department in a larger organisation.

Competency Field: Small Business Management

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Identify elements of a business plan	1.1	Components of a business plan relevant to a business opportunity identified and reviewed.
		1.2	Purpose of the business plan is identified.
		1.3	Business goals and objectives are identified and documented, as a basis for measuring business performance.
2.	Develop a business plan	2.1	The business plan demonstrates research into customer needs, resources and legal requirements especially occupational health and safety, in accordance with business goals and objectives.
		2.2	The financial plan identifies sources and costs of finance to provide required liquidity and profitability for the business.
		2.3	Marketing/ promotion strategies identify methods to promote the market exposure of the business.
		2.4	Production/operations plan identifies methods/means of production/operation to conform to business goals and objectives.
		2.5	Staffing requirements are identified as required to effectively produce/deliver products/services.
		2.6	Specialist services and sources of advice are identified where required, and costed in accordance with resources available.
3.	Develop strategies for minimising risks	3.1	Specific interests and objectives of relevant people are identified and their support of the planned business direction is sought and confirmed.
		3.2	Risk management strategies are identified and developed according to business goals and objectives and relevant legal requirements.

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3.3 Contingency plan is developed to address possible areas of non-conformance to plan.

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competence, allowing for differences between schools and workplaces. It relates to the unit as a whole and facilitates holistic assessment.

The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace which may include:

- relevant legislation from all government agencies that affect business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

Business goals and objectives may include:

- goals, objectives, plans, systems and processes
- short, medium or long term goals
- financial projections
- customer needs/marketing projections
- proposed size and scale of the business
- market focus of the business
- lifestyle issues

Relevant people may include:

- owner/operator, partners, financial backers
- family members
- clients
- suppliers
- franchise agency
- trade or industry associations
- regulatory bodies

Specialist services may include:

- accountants
- lawyers and providers of legal advice
- government agencies
- industry/trade associations
- online gateways
- business brokers/business consultants

Production/operations plan may include:

- options for production, delivery, technical and customer service and support
- means of supply and distribution
- operational targets and action plan may include short, medium or long term goals
- customer requirements, market expectations, budgetary constraints
- industrial relations climate and quality assurance considerations

Financial resources may include:

- personal, financial institutions, trade/industry sources
- government sources which provide various forms of technical and financial assistance including direct cash grants, subsidies, tax concessions and professional and technical advice

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Business plan may include:

- proposed size and scale of the business
- market focus of the business
- marketing requirements
- sources of funding
- need to raise finance and requirements of lenders
- level of risk involved, risk assessment and management
- stages in the business development
- business opportunities
- resources required and available
- details of ownership/management
- staffing
- organisation/ operational arrangements
- specialist services and sources of advice which may be required
- finance, expenditure statement, balance sheet and cash flow forecast, projections for the initial years of operation assumptions underlying the business plan, expected level of inflation and taxation, expected trend of interest rate, capital expenditure and its timing, stock turnover, debtors collection period, creditor payment period, return on investment
- recognition of any seasonal or cyclical (time-based) elements which are crucial to the success of the enterprise

Occupational Health and Safety issues must include:

- management of the organisation and operation of OHS as part of the business plan
- procedures for managing hazards in the workplace (identify, assess & control)
- identification of specific hazard issues such as occupational violence, security, manual handling, equipment and hazardous substances
- provisions for ensuring safety of members of the public and contractors visiting the premises/worksite

Financial plan may include:

- the current financial state of the enterprise (or owner/operator)
- financial performance to date (if applicable)
- likely return on investment
- a review of financial inputs required (sources and forms of finance)
- projections of likely financial results (budgeting)
- projected profit targets, pricing strategies, margins
- profit, turnover, capital and equity targets
- risks and measures to manage or minimise risks
- working, fixed, debt and equity capital
- non-recurrent assets calculations
- projections may vary depending on the importance of such information and the stage in the life of the business
- monthly, quarterly or annual returns
- analysis of sales by product/service, identifying where they were sold and to whom
- estimates of profit and loss projections for each forward period
- cash flow estimates for each forward period
- resources required to implement the proposed marketing and production strategies (staff, materials, plant and equipment)

Risk management strategies may include:

- security systems to provide physical security of premises, plant, equipment, goods and services
- security of intellectual property
- knowledge management
- breach of contract, product liability
- measures to manage risk including securing appropriate insurance to cover loss of earnings through sickness/accidents, drought, flood, fire, theft, professional indemnity
- Occupational Health and Safety requirements

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Staffing requirements may include:

- owner/operator
- full-time, part-time staff, permanent, temporary or casual staff
- sub-contractors or external advisers/consultants

Business opportunities may be influenced by:

- expected financial viability,
- skills of operator
- amount and types of finance available

Financial backers may include:

- owner, family and friends
- providers of venture capital
- banks or finance companies
- leasing and hire purchase financiers

Contingency plan may include:

- disturbances to cash flow, supply and/or distribution
- sickness or personal considerations

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range of Variables.

(1) Critical Aspects of Evidence

- the development of a business plan, which provides for finance, marketing and provision of products/ services to facilitate the business goals and objectives
- ability to identify and plan for Occupational Health and Safety, Duty of Care responsibilities (knowledge of relative legislation)

(2) Pre-requisite Relationship of Units

Pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- Government legislative requirements affecting business operation, especially in regard to Occupational Health and Safety and environmental issues, industrial relations and anti-discrimination.
- OHS responsibilities and procedures for identifying hazards relevant to business.
- reasons for and benefits of business planning
- planning processes
- preparation of a business plan
- setting goals and objectives
- methods of evaluation
- types of business planning:- feasibility studies, strategic, operational, financial planning
- relevant industry codes of practice
- principles of risk management relevant to business planning

Skills
The ability to:

- employ literacy skills to enable interpretation of business information
- use communication skills relevant to business performance
- use numeracy skills for data analysis
- ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

(4) Resource Implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace. These may include:

- computer equipment
- business references such as relevant legislation and regulation relating to the business operation especially OHS requirements

(5) Method of Assessment

In order to achieve consistency of performance, evidence should be collected over a set period of time, which is sufficient to include dealings with an appropriate range and variety of situation.

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(6) Context of Assessment

Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range of Variables.

Assessment must take account of the endorsed assessment guidelines in the Business Services Competency Standards Package.

Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment.

Assessment should reinforce the integration of the Critical Employable Skill Competencies and the Business Services Common Competencies for the particular Level. Refer to the Critical Employable Skills Levels at the end of this unit.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 3	
Work with others and in team	Level 2	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIWEB0784A: Configure a Payment Gateway

Competency Descriptor: This unit deals with the skills and knowledge required to install and test a payment gateway.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Server and e-business site is prepared	1.1	Payment method is chosen with reference to business requirements and customer expectations in accordance with organisation guidelines and procedures.
		1.2	Web pages are configured to handle requests and integrated with the database for each transaction following the correct procedures.
		1.3	Merchant account information is obtained from the relevant financial institution in accordance with organisation guidelines and procedures.
		1.4	Appropriate security systems are put in place to protect the database in accordance with organisation and legislative requirements.
2.	Payment gateway is installed	2.1	Payment software is tested and evaluated to ensure suitability and compatibility with organisational systems and to meet customer needs.
		2.2	Chosen payment software is installed following the correct procedures.
		2.3	Online merchant account is established in accordance with organisation guidelines and procedures.
		2.4	Payment gateway is configured to accept the appropriate payment methods and transaction types according the business requirements.
3	Payment gateway is tested	3.1	Transaction server is checked for functionality against expected performance benchmarks.
		3.2	Gateway is tested using relevant transaction types and in accordance with organisation requirements.
		3.3	Transactions are verified by using the administrative functions of chosen payment software.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to configuring a payment gateway.

Payment options may include:

- offline transactions
- online transactions
- combination of online and offline transactions
- credit cards
- online cheques or digital cash
- local and or international transactions

The merchant account and payment software must be tested to ensure the configuration will cater for both local and international currencies.

Servers required maybe one or more depending on size and functionality of website and may include:

- BEA Weblogic Servers
- Apache HTTP Server
- IBM VisualAge and WebSphere
- Microsoft-Internet-Information-Server
- Microsoft-IIS, Microsoft-IIS-W, Microsoft-PWS-95, & Microsoft-PWS
- Windows 2000 Server
- NetDynamics
- Lotus Domino
- Netscape Enterprise Server, Netscape-FastTrack, Netscape-Commerce
- Sun Micro Systems iPlanet Web Server
- iPlanet-Enterprise
- Sun Micro Systems Java Web Server
- Email Servers
- File & Print Servers
- FTP Servers
- Proxy Servers

Operating systems may include:

- Win 95/98/2000
- Sun Solaris/SunOS
- HP-UX, AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- Mac OSX
- Linux
- Netware

Security protocol may include:

- Secure Multipurpose Internet Mail Extensions
- Secure Socket Layer & Transport Layer Security
- IP Security Protocol
  -Domain Name System Security Extensions
  -Data Over Cable Service Interface Specification
- IEEE 802.11 Protocol standard for secure wireless Local Area Network products
  -Point-to-Point Network Tunnelling Protocol
  -Secure Electronic Transactions
  -Secure Shell

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Web development standards include:

- Web Content Accessibility Guidelines 1.0 (WCAG)
- Authoring Tool Accessibility Guidelines 1.0 (ATAG)
- User Agent Accessibility Guidelines 1.0 (UAAG)

E-commerce models include any kind of business-related transaction conducted with the assistance of electronic tools across and within organisations or with individual customers. May include:

- Brochure Site
- Customer Service Site
- Real Time Site
- Quote Aggregator
- Insurance Mall
- Direct Channel
- Virtual Carrier
- Quote Mall
- Agent Mall
- Consumer Auction
- Carrier Auctio
- Time Limited Information
- Investor Relations
- Technical Support
- Pre Sales Support and Corporate Awareness
- Proprietary Standard Promotion.

E-commerce models are changing all the time and the above are just an example of possible models.

Documentation and reporting issues may include:

- maintaining standards of definition
- standards of format
- user access information
- information should be clear and written in such a way that it will be readily understood by the target audience
- reports meet the specific output requirements and are presented in a logical and accessible manner

Security standards may include:

- Code of practice for information security management
- Specification for information security management systems

Knowledge economy involves all individuals participating on-line for:

- professional or personal research and learning
- communicating with friends or associates
- the pursuit of leisure activities

The knowledge economy is broader than on-line participation and includes knowledge workers and organisations and recognises the value of life long learning and the need to capture knowledge within organisations to ensure effective functioning.

E-business encompasses how organisations:

- structure themselves
- capture information
- manage their workers

Relate and partner with other organisations and groups to achieve effective functioning, efficient operations and cultural shifts.

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to configure a payment gateway in accordance with the performance criteria and the range listed within the range of variables statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- required information is sourced and accurately interpreted
- server and web page is configured to requirement
- appropriate software is evaluated, installed and configured to meet requirements
- conduct testing of payment gateway and verification of transactions
- compliance with security, legislative and organisation requirements and standards

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- payment software products
- the relative advantages and disadvantages of credit card, digital cash and online cheque systems
- encryption
- implementing client side shopping carts through active server pages (ASP) and interfacing with databases with ActiveX Data Objects (ADO)
- forwarding order data by email
- finance systems
- copyright and intellectual property
- legislations governing privacy
- globally unique ID (GUID)
- batching verification
- Electronic Commerce Modelling Language

Skills
The ability to:

- set up a merchant ID (MID) and a terminal ID (TID)
- perform scripting

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- a website
- payment software

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITINET2944A: Manage and review contracts

Competency Descriptor: This unit deals with the skills and knowledge required to negotiate and formulate extensive client support contracts.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Establish, develop and improve relationships	1.1	People are treated with integrity, respect and empathy.
		1.2	The organisation's social, ethical and business standards are used to develop and maintain positive relationships.
		1.3	The trust and confidence of colleagues, clients and suppliers are developed and maintained through competent performance.
		1.4	Interpersonal styles and methods are adjusted to the social and cultural environment.
2.	Manage relationships to achieve contracts	2.1	Negotiations regarding client support services are clearly and accurately communicated.
		2.2	Problems and misunderstandings are identified and clarified.
		2.3	Boundaries of service provision are clearly and accurately communicated to client.
		2.4	Seek client agreement in relation to service expectations.
3.	Plan resource use to achieve contract obligations	3.1	Resource requirements are determined, taking into account client requirements and organisational needs.
		3.2	Boundaries of service provision are detailed according to organisation policy, budget requirements and time restraints.
4.	Monitor operational performance against contractual outcomes	4.1	Progress is monitored to ensure quality standards are being achieved and maintained.
		4.2	Performance against contractual outcomes is monitored to assess progress in achieving contractual targets.

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4.3 Clients' level of satisfaction with contracted performance is determined.

4.4 Budget and financial information are analysed to monitor profit/productivity performance.

4.5 Unsatisfactory performance is identified and prompt action to rectify the situation is taken.

4.6 If necessary, recommendations for a contract variation are negotiated and referred for approval by appropriate personnel.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to managing and reviewing contracts.

Organisation variables may include but are not limited to:

- contracting arrangements relating to Information Technology purchasing
- budgeting and strategic plans
- time lines and budgetary constraints
- size, type and location of organisation
- core business and service range
- internal and external operating environments
- client support policies and procedures
- formal and informal support resources to assist in development of strategic plan

Workplace environment:

- benchmarks and benefits will vary from environment to environment
- the business objectives will vary the extent of the change process – systems only, Business Process Re-engineering (BPR), organisational
- may or may not include the evaluation of systems development methodologies

Values and policies may include:

- ethical work practices
- client relationships
- supplier relationships
- legal requirements

Planning Procedures:

- procedures are those based on client organisational requirements and will vary from business to business

Contractual outcomes:

- contracts may be formal legal documents
- Memorandums of Understandings
- less formal letters of agreement or emails which outline the scope of service provision

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Small business:

- in a small business there may not be a higher authority and so the requirements will be based on client requirements, approval and sign off
- procedures for top management approval and sign off will vary
- in a small business appropriate personnel may be the same person who is managing the contract

Project methodology:

- will vary according to the solutions developer's preferred approach
- the project methodology may include a number of templates
- analysis and system development processes may be highly documented and formalised

Workplace environment may involve:

- a business involved in a total organizational change
- systems only change
- a business improvement process
- an e-commerce solution involving the total organization or part of the organization

Issues for documentation and reporting may include:

- audit trails
- naming standards
- version control
- project management templates
- report writing styles

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- policies on communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

Level of autonomy of individual team members will vary. Teams may include:

- solution developers and business clients working together
- a number of third party solution developers working together, or
- a number of different businesses working in partnership

Strategic Plan:

- the overall organisational strategic plan may take different forms
- the IT strategic plan may form part of the overall strategic plan or may be in depth enough to be a stand-alone document

User roles within the project may vary depending on:

- the user's role within the organization
- expertise of the user
- level of authority

Constraints may depend on:

- the size of the organization
- size of project and/or development team
- project size and length (time and budget constraints)

Existing architecture may include:

- systems based around mainframes
- networks of mid-range machines and/or desktop personal computers
- vendor products
- network protocols

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Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory regulations
- industry requirements
- ergonomic requirements

Statutory requirements and legislations may include but not limited to:

- privacy legislation
- commercial requirements
- safety requirements

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to manage and review contracts in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- accessing and analysing relevant information on resources and budgets
- analysing current and future client support requirements
- monitoring resource utilisation and cost efficiency and effectiveness against contractual obligations
- reviewing objectives and performance measures
- movement in client satisfaction is in line with organisational policy and values
- organisational policy and procedures relating to contracting arrangements for Information Technology are employed, monitored and evaluated
- satisfying client requirements when negotiating for client support service delivery within quality, time and cost parameters

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- a broad knowledge base of methods for evaluating and forecasting vendor and technology trends
- analysis and planning approaches to technical problems or management requirements taking into account organisational values and purpose, such as formulating extensive client support contracts
- contracting requirements in relation to Information Technology purchasing of equipment and services, such as negotiating extensive client support contracts
- industry standards in relation to service and product agreements

Skill
The ability to:

- negotiation skills in relation to contracting equipment and services, such as negotiating extensive client support contracts
- evaluation and report writing skills involving analysis, such as identifying service expectations and boundaries of service provision
- group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts and gaining the trust and confidence of colleagues, clients and suppliers
- broad strategic planning skills for planning resource use to achieve contract obligations
- planning and analysis skills for reviewing objectives and performance measures against contract outcomes
- time management skills in relation to planning the management of services and monitoring satisfactory service
- organising and presenting information in relation to business report writing requirements, such as preparing information on client support performance outcomes and agreed quality standards

(4) Resource Implications

To demonstrate this unit of competence the candidate will require access to:

- workplace (actual enterprise or simulated)
- relevant business equipment
- detailed information relating to the business strategic plan
- budget constraints
- a timeframe for the strategic plan
- the business's objectives
- information on a range of IT business solutions
- the outcomes of the business analysis process
- organisational policies and procedures
- industry standards
- legislations

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge. Questions related to the performance criteria and directed to the candidate, peers and business client will assist in assessing competence. Observation of skills may assist in the collection of evidence.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET3134A: Review security risk management plan

Competency Descriptor: This unit deals with the skills and knowledge required for the inspection or examination of an organization's security risk management plan or individual measures on a cyclical or event driven basis.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Establish review procedures	1.1	Organisation's security risk management plan and individual measures contained in the plan are identified and confirmed as current as a basis for devising review.
		1.2	Procedures to develop an environment, which encourages cooperation from all employees to assist with the review process, are developed and implemented in collaboration with the client.
		1.3	Processes to be reviewed are allocated a priority in accordance with their significance to contributing to maintaining normal operations of the organization, cost of monitoring and client's requirements.
		1.4	All measures incorporated in the plan are confirmed as implemented and functioning to required level by reference to results of monitoring procedures, incident report and all other available information.
2.	Test existing measures	2.1	Measures to be tested are identified and a priority allocated based on measures' significance and (in accordance with) terms of reference.
		2.2	Methods selected to test overall system and specific measures have minimal impact on organization's normal operations and are in accordance with security risk management plan.
		2.3	Suppliers of services to the organization are included in the review to assess their compliance with the organization's security risk management plan.
		2.4	Potential impact of testing procedures is accurately gauged and warnings provided to appropriate people prior to tests.
		2.5	Testing program is within agreed timing, allocated resources and complies with Occupational Health and Safety (OH&S) regulations.

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		2.6	Results of tests are assessed against criteria and documented in accordance with organization procedures and plan.
		2.7	Client is immediately advised of any obvious deficiencies in security risk management procedures, which could affect operational viability of the organisation in the short term.
3.	Evaluate results	3.1	Effectiveness of procedures is assessed against criteria and other measures included in plan.
		3.2	Collected information is subject to statistical analysis whenever sufficient reliable data is available.
		3.3	An assessment is made of need to retain existing measures based on their effectiveness in protecting assets and any actual or intended changes in the organization's operating environment.
		3.4	Causes of deficiencies in measures are determined by an evaluation of test results and all other available information.
		3.5	Potential impact of any discrepancies is assessed and client immediately notified and agreed action implemented whenever the business operations of the organisation are at risk.
4.	Implement corrective measures	4.1	Strategies and resource implications for implementing corrective action are evaluated.
		4.2	Recommended action is implemented in accordance with client's requirements and after authority gained Need for and timing of any further review of the organisation's security risk management system is determined in consultation with client.

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RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to reviewing security risk management plan.

Procedure may include:

- education and awareness programs
- newsletters
- posters
- videos
- competitions
- talks etc. by senior management

Measures include:

- procedures
- training and education
- alarms
- barriers
- back-up systems
- personnel vetting
- controlled access
- monitoring

Tests may include:

- penetration exercises
- testing of alarms and other warning devices
- controlled interruption to normal operations; simulation
- rehearsals
- inspection
- interviews

Suppliers may include:

- vendors of hardware and software
- maintenance services
- system developers
- cleaning
- security
- catering services

Criteria may include:

- response time
- security awareness
- serviceability of equipment including back-up systems
- breaches of law
- organization's regulations etc during response reporting of `incident'
- corruption of information e.g. passwords
- availability of on-call personnel

Statistical analysis may include:

- frequency analysis
- departure from norm
- average occurrence
- trend analysis
- run charts
- histograms

Action may include:

- repair
- replacement
- augmentation
- duplication or redesign of existing procedures systems and equipment
- education and training
- additional personnel

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Operating environment includes:

- organisation's role
- size
- structure
- employee numbers
- location; stability of neighbours
- associates and competitors
- operating procedures and practice
- equipment
- morale
- executive staff and key appointments
- communication systems
- corporate competitive risk exposure
-

Assets include:

- people
- equipment
- facilities
- systems
- information
- information systems and sources
- reputation
- goodwill
- intellectual property
- work processes/practices
- business plans
- output

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to review security risk management plan in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- knowledge of security risk management and methods of reducing risks
- data collection and analysis
- testing and analysing the systems and evaluation of results
- provision of appropriate corrective measures to remove discrepancies and non-conformances

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- organisation's activities, systems etc. including future intentions
- security risk management
- sources of supply of security equipment and systems
- building facilities and services that apply to risk/threats being reviewed e.g. electrical and air-conditioning systems
- legislation as it applies to security risk management
- industry codes of practice
- responsibilities necessary to comply with applicable OH&S regulations
- basic statistical analysis and presentation of statistical data

Skill
The ability to:

- communicate effectively
- negotiate skilfully
- conduct interview
- prepare technical report
- analyse risks
- collate numerical data
- problem solving
- conduct research and analytical
- manage time

(4) Resource Implications

To demonstrate this unit of competence the candidate will require access to:

- workplace (real or simulated)
- criterion referenced assessment instruments
- copies of relevant legislation
- facility with a range of assets as listed in the range of variables
- actual or artificial terms of reference for a security risk management review
- actual or artificial security risk management plan
- incident reports
- results of the ongoing security risk management monitoring system
- organisational policies and procedures
- industry standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment against this unit of competency may involve any of the following techniques:

- continuous assessment in an institutional setting that simulates the conditions of performance describe in the elements, performance criteria and range of variables statement that make up the unit
- continuous assessment in the workplace, taking into accounts the range of variables affecting performance
- self-assessment on the same terms as those described above

simulated assessment or critical incident assessment, provided that the critical incident involves assessment against performance criteria and an evaluation of underpinning knowledge and skill required to achieve the required performance outcomes

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manage process • Select the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITIGEN2134A: Develop configuration management

Competency Descriptor: This unit deals with the skills and knowledge required to develop administrative and technical procedures throughout the life cycle of a system, network, software and documentation project.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Establish configuration management requirements	1.1	Identification standards are established for naming and version control of system, network, software and documentation in accordance with organisational needs.
		1.2	Tools and procedures for the required level of integration into the programming or system or network environment are determined.
		1.3	Responsibilities are determined for configuration management within the project and for ongoing support including approval of changes.
		1.4.	Point at which items are subjected to configuration control is determined.
		1.5	Tools and procedures for the required level of integration into the programming or system or network environment are determined.
2.	Establish control mechanisms	2.1	Methods are established for identification and recording of change requests in line with organisational requirements.
		2.2	Evaluation criteria and process for approval of change requests are established and take into account organisational authorisation requirements.
		2.3	Other management control criteria such as security, access and non-duplication of names are established.

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		2.4	Necessary audit trails are determined and alerts for variations or non-conformance are developed
3.	Establish monitoring mechanisms	3.1	Mechanisms are established to identify the status of: software throughout the software life cycle, or the status of the system or network during upgrading or reconfiguration
		3.2	Management of records and status reports are determined, showing the history of baselines and their links to back-ups.
		3.3	The level of detail required in the status reports is determined and target audiences are defined.
		3.4	Configuration management is integrated into general project management processes for monitoring and control purposes.
4.	Manage the release of the product to clients	4.1	Physical and functional completeness of items are determined for the purpose of release.
		4.2	If necessary, requirements for formal control of software products and documentation are determined.
		4.3	Policies are determined for retention of baseline/master copies, taking into account safety and security, legislative requirements and organisational policies.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to developing configuration management.

Existing architecture will vary from:

- systems based around LANs, WTAN, VPN to networks of mid-range machines and/or desktop PCs

Networks can be local, wide or based on the Internet. Vendor products and network protocols.

Software metrics may relate to:

- size of each development work package
- milestones as variables determined by the sponsor, project manager, development team

Constraints**:**

- depending on the size of the organisation, project and /or development team the constraints will vary
- time and budget constraints will vary according to project size and length

Documentation requirements may include:

- documentation for version control may follow ISO standards
- audit trails, naming standards, version control, project management templates and report writing styles will vary according to organisational approach
- information gathering processes may have associated templates

Test and acceptance processes will vary according to:

- size
- type and scope of the project,

Workplace environment may involve:

- a business involved in a total organisational change
- a systems only change
- a business improvement process
- an e-business solution involving the total organisation or part of the organisation

OH and S Standards as per:

- company requirements
- statutory requirements
- vendor requirements

Ergonomic and environmental factors must be considered during the demonstration of this competency.

Administration system:

- depending on the size of the project, a system is required to maintain order and manage the amount of information being processed by the project member/s

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Consulting techniques may include:

- interviews
- surveys
- chat rooms
- focus groups,
- questionnaire
- surveys
- soft system methodologies
- Joint Application Development (JAD)

Analysis techniques may include:

- gap analysis
- urgency and impact
- statistical
- range of current requirements gathering methodologies

Quality process:

- some organisations may be quality certified and have well document standards for addressing quality while others will not

Metrics and planning method:

- will vary depending upon whether the organisation uses a formal method for development
- in some sites there will be no guidelines to follow

Sources of information may include:

- change management plans
- project management plans
- current systems design plans
- business strategic plans

Software life cycle will vary according to the software life cycle model being employed.

System may include:

- legacy systems
- green field sites,
- organisational wide system
- discrete system

Development methods/tools will vary from:

- the traditional systems development life cycle with little or no formalisation
- to a very well structured CASE tool

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EVIDENCE GUIDE

Competency is to be demonstrated by develop configuration management in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- knowledge of system development methodologies, configuration management processes and quality assurance requirements
- application of knowledge of quality processes, audit trials and version control
- use of appropriate tools, methodologies and processes
- demonstration of the ability to develop reliable and valid configuration management procedures for technical and administrative procedures for use during the software life cycle or the system or network reconfiguration, up grade process
- establish required monitoring and control mechanisms
- produce relevant documentation and reports
- work in conformance with organisational, legal, statutory and industry standards and requirements

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- software/system development methodologies
- configuration management requirements
- quality assurance and quality processes
- project planning methodologies and tools
- control and monitoring mechanisms
- bench marking methodologies
- developing administrative and technical procedures
- project planning and management
- software and documentation life cycle
- CASE tools
- industry standards
- organisational policies and procedures
- Occupational Health and Safety requirements

Skills
The ability to:

- determine system requirements
- communicate effectively
- solve problems
- establish procedures and guidelines
- apply configuration management skills
- analyse, evaluate and present information
- produce reports and documentations
- apply monitoring and control mechanisms
- integrate and manage network resources
- manage system/software development
- work safely
- apply project planning skills

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- relevant technology
- project and design plans
- documentation and quality requirements
- relevant tools and human resources
- organisational policies, procedures and requirements
- industry standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

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ITINET2154A: Develop detailed component specifications

Competency Descriptor:

This unit deals with the skills and knowledge required to analyse the requirements and produce a set of high level component specifications from the project specifications.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Analyse components	1.1	Behaviour scenarios are documented according to documentation standards.
		1.2	Components are identified and/or developed within project specification.
		1.3	Diagrams are prepared according to project standards.
		1.4	Behaviour scenarios are documented according to documentation standards.
2.	Prepare schema	2.2	Component connectivity is analysed and data flows iterated.
		2.3	Component action diagrams are prepared according to project standards.
3.	Prepare component model	3.3	Roles and responsibilities are described.
		3.4	Functional requirements are reviewed and update.
		3.5	Interface components and component relationships are specified.
		3.6	Interaction diagrams are prepared according to project standards.
		3.7	Roles and responsibilities are described.
4.	Iterate and review model	4.1	Current model is walked through and functionality reviewed.
		4.2	Relationships are identified to ensure integration of model.
		4.3	Class service requirements are reviewed and initial test criteria are prepared.
		4.4	A process for incremental testing is implemented.

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RANGE STATEMENT

This unit applies to activities associated with the essential operations linked to developing detailed component specifications from project specifications.

Development methods/tools may:

- vary from the traditional Systems Development life cycle with little or no formalisation
- involve very well structured CASE tools

Workplace environment may involve:

- a business involved in a total organizational change
- systems only change
- a business improvement process
- an e-commerce solution involving the total organization or part of the organization

Issues for documentation and reporting may include:

- audit trails
- naming standards
- version control
- project management templates
- report writing styles

Standards and procedures may include:

- formal procedures that must be adhered to with check points and sign offs with documented procedures and templates
- implementation of financial control mechanisms
- policies on communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

Occupational Health and Safety requirements may include:

- enterprise requirements
- statutory regulations
- industry requirements
- ergonomic requirements

Iterations:

- the scope and number of iterations is also a factor of the project size and complexity, and the analysts persistence and perseverance

User roles within the project may vary depending on:

- the user's role within the organization
- expertise of the user
- level of authority

Constraints may depend on:

- the size of the organization
- size of project and/or development team
- project size and length (time and budget constraints)

Existing architecture may include:

- systems based around mainframes
- networks of mid-range machines and/or desktop personal computers
- vendor products
- network protocols

Statutory requirements and legislations may include but not limited to:

- privacy legislation
- commercial requirements
- safety requirements

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EVIDENCE GUIDE

Competency is to be demonstrated by the ability to effectively develop detailed component specifications in accordance with the performance criteria and the range listed within the range of variables statement.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- knowledge of system development methodologies, developing components from project specifications and component analysis
- confirm the ability to identify and model components relevant to the project requirements
- specifications need to be deliverable
- confirm the interoperability between components
- analysis of component and review of model
- compliance with organisation and industry standards and procedures

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- development tools and their use
- techniques for analysing components
- current industry design methodologies
- analysing component and preparing schema
- current industry accepted hardware and software products
- quality assurance practices
- preparing component model
- cost benefit analysis
- information sources for a cost benefit analysis
- the system's current functionality
- program development methodologies
- producing a set of high level component specifications from the project specifications
- configuration management
- data modelling techniques
- preparing component model
- iterating data flow
- industry standards

Skills
The ability to:

- solve problem
- perform analysis, diagnosis and evaluation
- specify the critical principles, functions and framework for the system to operate across the enterprise or business units
- communicate effectively
- facilitate group discussion and gain consensus on issues
- prepare schema and component
- iterate and review model
- produce relevant documentations
- apply questioning and active listening skills
- assess technological capabilities
- conduct research
- apply quality processes
- apply project planning skills

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(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- project specifications
- project standards
- relevant resources
- organisational guidelines
- industry standards

(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
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ITINET3144A: Monitor and improve knowledge management system

Competency Descriptor: This unit deals with the skills and knowledge required to monitor and improve existing knowledge management systems or when implementing new knowledge management systems.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Anticipate need and organise required information on live system	1.1	Client needs for specific information/material are anticipated and information/material is available and organised to meet needs.
		1.2	Information/material subject to recurrent requests is organised to facilitate client access and retrieval of information.
		1.3	Clients and staff readily access required information.
2.	Increase awareness and use of knowledge management system	2.1	Mechanisms to develop and improve awareness of networked information resources are established, monitored and improved.
		2.2	Strategies are developed and maintained to improve access to, and use of, networks for communication and information access and retrieval.
		2.3	Tools are available to identify, search, retrieve and use networked information effectively and appropriately to satisfy client needs.
		2.4	Strategies are realistic and reasonable and take into account ways of reducing information overload.
		2.5	Opportunities to improve services or provide innovative services to clients are identified and implemented appropriately.
		2.6	Mechanisms are established and used to share information, ideas and resources to improve system standards, access and use.
		2.7	Mapping of information resources reflects knowledge of appropriate tools and clients requirements.

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3.	Increase efficiency of access to knowledge management system	3.1	The most cost-effective means of accessing networked facilities and information to meet client needs are sought and acted on.
		3.2	Access issues are discussed regularly with all stakeholders to assure continuous improvement of systems accessibility.
		3.3	Support, training and encouragement are provided to enable clients to access and use networked information, and taking into account client characteristics and needs.
		3.4	Mechanisms for more efficient delivery of information from remote sources are sought and implemented and/or recommendations are made to appropriate person(s).
		3.5	Increased efficiency of network access and use takes into account the need for security, legal agreements, client needs and accounting mechanisms.
4.	Review new systems to improve access information	4.1	Functions, capabilities or operations, which the new system is designed to address, are monitored.
		4.2	Review reflects awareness of relevant staff and client requirements for access to information.
		4.3	Client and staff awareness and ability to use system is monitored.

RANGE STATEMENTS

This unit applies to activities associated with the essential operations linked to monitoring and improving knowledge management system.

Legislation and codes may include:

- copyright act and amendments
- licensing agreements
- archives act
- Occupational Health and Safety legislation
- privacy act

Systems and processes:

- Computer systems (hardware and software)
- Networks (local, national or international)
- Workflows, associated routines and operating procedures

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Process improvements may include:

- reduce production cost
- improve value adding
- improved international or domestic competitiveness
- improved international competitiveness
- new products
- new or improved business processes
- improve customer relationships

Hardware may include:

- work stations
- PCs
- networks
- remote sites
- servers

Software may include:

- communications software
- multimedia and computer graphics
- databases
- Intranet and collaborative working software
- web enabled and other software

EVIDENCE GUIDE

Competency is to be demonstrated by the ability to monitor and improve knowledge management system in accordance with the performance criteria and the range listed within the range of variable statements.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- demonstration of required knowledge and application of such knowledge in managing the system
- assessment must confirm the ability to monitor and implement strategies to improve a new or existing knowledge management system
- the candidate will ensure that staff and/or clients can access the required information and that all relevant information is being accessed and irrelevant information is not

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- evaluating client information needs effectively and matching them to appropriate resources
- information management
- using information management systems
- a range of information sources in all types of formats
- modelling data processes
- searching electronic networks and remote databases for required information
- database structures and organisation
- applying principles of database structure and construction
- reviewing new systems for organising information
- copyright act and amendments
- copyright and intellectual property issues
- privacy and confidentiality legislations
- codes of ethics
- industry standards

Skill
The ability to:

- use computer languages
- apply techniques to elicit information from users
- perform short and long term capacity planning
- apply business analysis skills
- communicate with clients
- Model data processes

(4) Resource Implications

The following resources should be made available:

- workplace (actual enterprise or simulated)
- database(s)
- organisational information requirements
- information repositories
- relevant resources
- organisational guidelines
- relevant legislations and codes
- industry standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge. Questions related to the performance criteria and directed to the candidate, peers and business client will assist in assessing competence. Observation of skills may assist in the collection of evidence.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Simulated activities must closely reflect the workplace.

(6) Context of Assessment

This unit may be assessed on or off the job. Assessment should include practical demonstration either in the workplace or through a simulation. A range of methods to assess underpinning knowledge should support this.

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CRITICAL EMPLOYABILITY SKILLS

Three levels of performance denote level of competency required to perform a task. These levels do not relate to the NCTVET Qualification Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Levels of Competency		
Level 1.	Level 2.	Level 3.
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 3	
Plan and organise activities	Level 3	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 3	
Solve problems	Level 3	
Use technology	Level 3	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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ITIWEB2384A: Implement risk management processes

Competency Descriptor: This unit deals with the skills and knowledge required to implement procedures that provide guidelines to identify, analyse, evaluate, mitigate and monitor risks involved in technological change.

Competency Field: Information Technology

ELEMENT OF COMPETENCY		PERFORMANCE CRITERIA	
1.	Establish the risk context	1.1	Organisational and technical environment are defined and documented.
		1.2	Risk boundaries are established and documented according to business operating and strategic environment.
2.	Identify risk factors	2.1	Project risks, driven by scale, importance, complexity and time are identified and documented according to documentation standards.
		2.2	Technological risks are identified and documented according to business strategy.
		2.3	Business impact of change is identified and documented according to current and future business directions.
3.	Implement risk management plan	3.1	Plans for treating each risk factor according to its classification are reviewed and monitored.
		3.2	Measurable benchmarks to track the treatment of risk are identified, e.g. number of files unable to be read after migration to new system are monitored.
		3.3	Risk management intervention points according benchmarked performance tolerances are adhered to.
		3.4	Risk contingency plans that provide redundancy to mitigate unacceptable risks are implemented according to business needs.
		3.5	Phased implementation and piloting are implemented to compartmentalise risk factors.
4.	Monitor, update and report risk profile	4.1	Routine regular risk updates to add new risks and remove old risks are conducted, e.g. once a part of a system has been migrated migration ceases being a risk but implementation becomes a new risk.
		4.2	Pre-programmed risk reviews are conducted at major project milestones.

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4.3 Feedback channels are established to provide warning of potential new risks according to business needs.

RANGE STATEMENT

The Range Statement contextualises the unit of competency and provides a focus for assessment. The information provided is intended to define the scope of assessment and to assist assessors define the performance to be achieved by an individual in the workplace. The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance.

Risk management tools and techniques may involve:

- calling upon personal experience and/or subject matter experts
- conducting or directing qualitative and/or quantitative risk analysis, such as schedule simulation, decision analysis, contingency planning, alternative strategy development
- collating and using the products of specialist risk analysis to make project-wide risk management decisions
- assessing and reporting the potential impact of project risk on the organisation

Risk management plans may include:

- potential risk events
- preferred and alternative risk management strategies and actions
- formal arrangements
- responsibility assignment
- contingency plans
- assigned risk responsibilities

Operating system may include:

- Win 95/98/2000/XP
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DOS
- DEC
- VMS
- Mac OSX
- Linux
- Netware

Typical business risks relate to:

- how important the processes affected by change are to the business or customer
- whether processes or technology will change
- whether other projects or technologies are affected
- whether structural changes are caused by new technology and whether third party businesses – such as suppliers or contractors – are affected by the new technology.

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Technology risks relate to:

- whether the technology is proven or emerging
- if technology is customised or off the shelf
- whether data conversion and transfer is simple or complex
- whether a single technology is applied or multiple technologies are integrated

Hardware may include IT equipment of all types:

- work stations
- PCs
- networks
- remote sites
- servers

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required skills and knowledge, the Range Statement and the assessment guidelines.

(1) Critical Aspects and Evidence

It is essential that competence be observed in the following aspects:

- assessment must confirm the ability to implement procedures that identify where risk occurs and what measures need to be taken to treat the risk
- effective implementation procedures include preventative considerations such as establishing warning systems and establishing an on going process, which includes regular or programmed reviews to the risk profile
- risk management must include managing those factors that may have an adverse effect on an external party such as an e-business web site customer or supplier. Consequently, risk management may need to be a collaborative process that involves users and other members of a businesses e-supply chain.

An individual demonstrating these competencies would be able to:

- demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- apply solutions to a defined range of unpredictable problems
- identify and apply skill and knowledge areas to a wide variety of contexts with depth in some areas
- identify, analyse and evaluate information from a variety of sources
- take responsibility for ones own outputs in relation to specified quality standards
- and take limited responsibility for the quantity and quality of the output of others

(2) Pre-requisite Relationship of Units

The pre-requisite for this unit is:

- Nil

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(3) Underpinning Knowledge and Skills

Knowledge
Knowledge of:

- technology updating guidelines
- business process design
- maintaining and administering a site
- how e-business sites fit into corporate strategy
- policy writing and dissemination
- documenting technical specifications
- the business supply chain
- user analysis and the CRM
- capacity planning
- technology transfer
- information architecture
- web site design software and hardware
- project management
- copyright and intellectual property laws
- privacy and confidentiality requirements
- industry code of ethics
- industry standards

Skills
The ability to:

- solve problems
- work with other
- analyse and interpret technical information
- communicate effectively
- conduct capacity planning
- transfer technology
- apply information architecture
- use site design software and hardware
- carry out project management

(4) Resource Implications

The following resources should be made available:

- workplace (actual or simulated)
- specifications
- relevant tools and equipment
- design specification documentation which detailed the purpose, strategy and maintenance of the website
- web servers
- E-business website
- site server
- site servers software
- analysis software
- requirements documentation
- the risk management plan
- user analysis
- updated or new technology to be applied to any of the above
- organisational policies and procedures
- industry standards

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(5) Method of Assessment

Assessment methods must confirm consistency of performance over time and in a range of workplace relevant contexts.

Assessment should be by direct observation of tasks and/or samples of work and questioning on underpinning knowledge.

Assessment should be conducted over time and will generally be in conjunction with assessment of other units of competency.

Competence in this unit needs to be assessed using formative assessment to ensure consistency of performance in a range of contexts. Simulated activities must closely reflect the workplace and may need to take place over a period of time to allow the candidate to fully demonstrate competence in all facets of managing risk. Candidates must be able to manage the risks involved in changing software, hardware and technical processes and procedures.

(6) Context of Assessment

Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.

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CRITICAL EMPLOYABILITY SKILLS

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Levels of Competency		
Level 1	Level 2	Level 3
• Carries out established processes • Makes judgement of quality using given criteria	• Manages process • Selects the criteria for the evaluation process	• Establishes principles and procedures • Evaluates and reshapes process • Establishes criteria for evaluation

Collect, analyse and organise information	Level 3	
Communicate ideas and information	Level 2	
Plan and organise activities	Level 2	
Work with others and in team	Level 3	
Use mathematical ideas and techniques	Level 2	
Solve problems	Level 3	
Use technology	Level 1	

Please refer to the Assessment Guidelines for advice on how to use the Critical Employability Skills.

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