Technical and Vocational Education and Training (TVET) Council

Occupational Standards of Competence

Software Development

Level 3

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Qualification Overview

NVQB

in

Software Development

Level 3

NVQB in Software Development Level 3

Qualification Overview

This qualification is designed for software developers who implement, test, deploy, monitor and maintain customer solutions. The NVQB in Software Development covers the knowledge, skills and attitudes required to work with multiple disciplines to understand customer needs, design solutions based on customer needs and integrate software systems. It also takes into consideration the fact that the design and development of websites, applications, tools and technology must facilitate accessibility by persons with disabilities. The qualification also addresses the knowledge, skills and attitudes required to document applications and underpinning business processes to facilitate future maintenance and upgrades.

Who is this qualification for?

This qualification is intended for those persons who have:

- demonstrated competence in two or more programming languages such as evidence of vendor certifications
- a minimum of 1 year of experience in the field of software development to ensure that they are familiar with the knowledge and skills required to work with multiple disciplines to understand customer needs and design solutions based on customer needs.

Jobs in the occupational sector:

- Software Developer
- Applications Developer
- Software Tester
- Programmer Analyst

This list is not exhaustive and only serves to illustrate the breadth of the qualification.

A010903 - APPROVED NATIONAL VOCATIONAL QUALIFICATION STRUCTURE

SOFTWARE DEVELOPMENT LEVEL 3

To achieve the full qualification, candidates must complete all **fifteen (15)** mandatory units in total.

MANDATORY UNITS (ALL MUST BE COMPLETED)	CODES
1. Apply skills in object-oriented design	**UA34903**
1.1 Derive high-level design from specifications	
1.2 Refine the design	
1.3 Document the design	
2. Contribute to a software development review	**UA35003**
2.1 Review software and implementation standards	
2.2 Review software metrics and milestones	
2.3 Document and confirm with relevant personnel	
3. Work collaboratively in an ICT environment	**UA35103**
3.1 Establish team protocol requirements	
3.2 Develop protocols	
3.3 Review compliance with protocols	
4. Analyse software requirements	**UA35203**
4.1 Gather and confirm client requirements	
4.2 Analyse the functional and related non-functional requirements and feasibility of project	
4.3 Develop high-level system solutions	
4.4 Prepare and publish software-requirements documentation	
5. Identify and resolve client requirements	**UA35303**
5.1 Determine the context of business needs and problems	
5.2 Gather information	
5.3 Confirm system specifications	
6. Test software development	**UA35403**
6.1 Establish testing requirements	
6.2 Prepare test plan documents	
6.3 Write and execute test procedures	
6.4 Review test results	

MANDATORY UNITS (ALL MUST BE COMPLETED)	CODES
7. Build a user interface	**UA35503**
7.1 Establish task requirements and prototype user interface	
7.2 Design and build user interface	
7.3 Test and document user interface	
8. Build a database	**UA35603**
8.1 Confirm database design	
8.2 Create a prototype database	
8.3 Deploy the database	
8.4 Evaluate the database	
9. Apply programming skills in multiple languages	**UA35703**
9.1 Establish task requirements and define data structures and code	
9.2 Code using statistical packages	
9.3 Develop, test and document files and applications	
9.4 Debug, document and test code	
10. Identify and evaluate emerging technologies and practices	**UA35803**
10.1 Assess and confirm emerging technologies and practices	
10.2 Evaluate the impact of emerging technologies and practices	
10.3 Develop strategies to prepare for emerging technologies and practices	
11. Contribute to the protection of the environment	**U68402**
11.1 Work in an environmentally conscious way	
11.2 Contribute to continuous improvements in protecting the environment	
12. Maintain a safe and secure working environment	**U00306**
12.1 Maintain personal health and hygiene	
12.2 Carry out procedures in the event of a fire	
12.3 Deal with the discovery of suspicious items/ packages	
12.4 Carry out procedures in the event of an accident	
12.5 Maintain a safe work environment for customers, staff and visitors	
12.6 Maintain a secure work environment for customers, staff and visitors	

MANDATORY UNITS (ALL MUST BE COMPLETED)	CODES
13. Contribute to cyber security risk management	**UA35903**
13.1 Recommend risk management strategies	
13.2 Support the implementation of approved risk management strategies	
13.3 Review and revise implemented risk management strategies	
14. Comply with ethics and privacy policies in the ICT environment	**UA36003**
14.1 Establish organisational requirements to comply with intellectual property, ethics and privacy policy procedures	
14.2 Evaluate and implement organisational intellectual property, ethics and privacy policy procedures	
14.3 Identify non-compliance incidents and make recommendations	
15. Develop an entrepreneurial strategy	**UA36103**
15.1 Identify the nature of entrepreneurship	
15.2 Identify and assess entrepreneurial characteristics	
15.3 Create a self-assessment profile	
15.4 Create an entrepreneurial strategy	

UA34903 Apply skills in object-oriented design

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to produce an object-oriented design from specifications, applying the cyclic process of iteration from identification of class, instance, role and type to the final object-oriented model of the application.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Derive high-level design from specifications	1.1 Gather and determine application design specifications from relevant personnel.
	1.2 Create appropriate design diagrams according to the application design specifications.
	1.3 Develop communication and sequence diagrams according to a given set of specifications and organisational requirements.
	1.4 Develop activity and state diagrams using a given set of specifications and organisational requirements.
2. Refine the design	2.1 Investigate and refine behaviour, state of classes and collaboration between classes.
	2.2 Validate the visibility of class services and state data.
	2.3 Identify generalisations and specialisations within classes.
	2.4 Refine the class design and apply aggregation and composition principles appropriately according to refinement techniques.
3. Document the design	3.1 Create detailed diagrams according to organisational documentation conventions.

3.2 Develop detailed unified modelling language communication and sequence diagrams according to organisational documentation conventions.

3.3 Create detailed unified modelling language activity and state diagrams according to organisational documentation conventions.

RANGE STATEMENT

All range statements must be assessed:

1. **Application design specifications** may include but not limited to:

    - User requirements
    - Software requirements documents
    - System specifications
    - Design specifications

2. **Relevant personnel** may include but not limited to:

    - Supervisor
    - Team member
    - External client

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. Why it is important to systematically gather and determine application design specifications in object-oriented designs.
2. How to systematically interpret application design specifications in object-oriented design.
3. Which methods are used to create appropriate static class diagrams according to a given set of specifications.
4. Why it is important to create appropriate static class diagrams according to a given set of specifications.
5. Why it is important to develop accurate and legible communication and sequence diagrams according to a given set of specifications.
6. How to develop accurate and legible communication and sequence diagrams according to a given set of specifications.
7. Which methods are used to create activity and state diagrams accurately and legibly using a given set of specifications.
8. Why it is important to develop activity and state diagrams accurately and legibly using a given set of specifications.
9. Which methods are used to investigate and refine behaviour, state of classes and collaboration between classes systematically.
10. Why is it important to systematically validate the visibility of class services and state data.
11. Which methods are used to systematically identify generalisations and specialisations within classes.
12. Why is it important to refine the class design and apply aggregation and composition principles.
13. What is unified modelling language and why it is important.
14. How to create static class diagrams using unified modelling language according to organisational documentation conventions.
15. How to create communication and sequence diagrams using unified modelling language according to organisational documentation conventions.
16. How to create activity and state diagrams using unified modelling language according to organisational documentation conventions.
17. Why is it important to develop diagrams using unified modelling language according to organisational documentation conventions.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion
- Group project

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA35003 Contribute to a software development review

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to establish standards applicable to information and communications technology (ICT), technical requirements and quality assurance processes applicable to software development.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Review software and implementation standards	1.1 Obtain and clarify the project plan, project standards and organisational requirements with relevant personnel according to organisational guidelines.
	1.2 Document relevant software standards, according to project standards and organisational requirements.
	1.3 Assign software standards to functions, according to the detailed technical plan.
	1.4 Monitor and report on the implementation of standards against the acceptance criteria and detailed technical specifications.
2. Review software metrics and milestones	2.1 Define metrics related to project milestones, timeframe and cost considerations according to quality assurance practices and project standards.
	2.2 Confirm that communication and distribution strategies are clear, coherent and meet the overall project plan requirements with relevant personnel.
	2.3 Develop a schedule of quality reviews according to organisational requirements.
	2.4 Determine quality considerations by identifying in-process measurement points applicable to critical organisational requirements.

		25.4 Determine suitable methods to benchmark and scale achievement against stated requirements and cost considerations.
3.	Document and confirm with relevant personnel	3.1 Report metrics and milestones to relevant personnel according to organisational requirements.
		3.2 Obtain feedback from relevant personnel and amend according to organisational procedures.
		3.3 Confirm that requirements are met with relevant personnel.

RANGE STATEMENT

All range statements must be assessed:

1. **Project standards** may include but not limited to:

    - Development methodology
    - Reporting mechanisms
    - Project plan
    - Change control
    - Quality of software modules
    - Sharing of code/libraries
    - Ease of modification and maintenance
    - Delivery against required milestones and budget

2. **Relevant personnel** may include but not limited to:

    - Supervisor
    - Team member
    - External client

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. Why it is important to obtain and clarify the project plan, project standards and organisational requirements with relevant personnel.
2. How to document software standards according to project standards.
3. Why it is important to assign software standards to functions, according to the detailed technical plan and how to do so.
4. How to monitor and report on the implementation of standards against acceptance criteria and detailed technical specifications.
5. Why it is important to define metrics related to project milestones, timeframe and cost considerations and how to do so.
6. Why it is important to confirm that communication and distribution strategies are clear, coherent and meet the overall project plan requirements with relevant personnel.
7. How to develop a schedule of quality reviews according to organisational requirements and why it is important to do so.
8. How to determine relevant quality considerations by identifying in-process measurement points applicable to critical organisational requirements.
9. How to determine suitable methods to benchmark and scale achievement against the stated requirements and cost considerations and why it is important to do so.
10. Why it is important to report metrics and milestones to relevant personnel according to project standards.
11. Why it is important to obtain feedback from relevant personnel and amend accordingly and how to do so.
12. What methods are used to confirm that requirements are met with relevant personnel and how to do so.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA35103 Work collaboratively in an ICT environment

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to work collaboratively in a virtual information and communications technology (ICT) team environment to achieve organisational objectives. It addresses exchanging knowledge and skills, providing support to the team as well as performing within a team.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Establish team protocol requirements	1.1 Confirm appropriate team protocols for virtual ways of working including cyber safety protocols, with reference to organisational policy and procedures.
	1.2 Interpret available documentation concerning communication tools and technology to support teams working collaboratively in a virtual environment.
	1.3 Identify the roles and responsibilities of team members according to team communication protocols.
	1.4 Identify and document ways to improve team protocols for working collaboratively in a virtual environment within your area of responsibility.
2. Develop protocols	2.1 Review technology utilised to support teams working collaboratively in a virtual environment within individual area of responsibility.
	2.2 Establish relevant protocols to share knowledge collaboratively in a virtual environment according to work details.
	2.3 Determine appropriate cyber security protocols in accordance with organisational cyber security procedures.

3. Review compliance with protocols	3.1 Evaluate protocols utilised to support teams working collaboratively in a virtual environment within individual area of responsibility.
	3.2 Determine and document improvements to future work protocols in the virtual environment within individual area of responsibility.

RANGE STATEMENT

All range statements must be assessed:

1. **Feedback** may include but not limited to:

   - Survey
   - Interview
   - Focus groups

2. **Relevant personnel** may include but not limited to:

   - Supervisor
   - Team member
   - External client

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. How to identify and interpret appropriate team protocols for virtual ways of working, including cyber safety with reference to organisational policy and procedures.
2. Why it is important to identify and interpret documentation concerning communication tools and technology available to support teams working collaboratively in a virtual environment.
3. Why it is important to determine and interpret the roles and responsibilities of team members according to team communication protocols and how to do so.
4. Why it is important to determine ways to improve team protocols for working collaboratively in a virtual environment within your area of responsibility and which methods to use to do so.
5. Why it is important to systematically review technology utilised to support teams working collaboratively in a virtual environment within your area of responsibility and how to do so.
6. Why it is important to develop relevant protocols to share knowledge collaboratively in a virtual environment according to work details and how to do so.
7. Why it is important to develop appropriate cyber security protocols in accordance with organisational cyber security procedures and how to do so.
8. Why it is important to review the protocols utilised to support teams working collaboratively in virtual environments within your own area of responsibility and how to do so.
9. What methods to use to seek feedback from relevant personnel on team communication practices according to organisational procedures and why this is important.
10. Why it is important to determine and document improvements to future work protocols in virtual environments within your own area of responsibility and how to do so.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA35203 Analyse software requirements

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to research and analyse client requirements, produce a range of options for business process efficiencies and create a software-requirements document.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Gather and confirm client requirements	1.1 Determine the requirements and scope of the project with relevant personnel.
	1.2 Obtain information regarding requirements from relevant sources of information and business processes.
	1.3 Analyse agreed client requirements, problem context and opportunities faced by the client according to organisational procedures.
	1.4 Document client requirements, project scope, related problems and sources of information according to organisational procedures.
	1.5 Submit documents to relevant personnel and seek and respond to feedback from them.
2. Analyse the functional and related non-functional requirements and feasibility of the project	2.1 Map business processes using modelling tools including unified modelling language (UML).
	2.2 Determine and document opportunities in business process efficiencies according to organisational procedures.
	2.3 Document functional and non-functional processes according to organisational procedures.
	2.4 Evaluate the technical and operational feasibility of the project against organisational resources and requirements.

	2.5 Determine the feasibility of the budget and schedule of the project based on organisational resources.
	2.6 Examine the purpose and intent of the project within the organisation.
3. Develop high-level system solutions	3.1 Develop and document feasible solutions according to client requirements and organisational guidelines.
	3.2 Explore and document the feasibility of each solution.
	3.3 Examine alternatives against project constraints.
	3.4 Document assumptions, dependencies and required resources according to organisational procedures.
	3.5 Produce a project risk analysis according to project requirements.
	3.6 Document future requirements according to organisational procedures.
4. Prepare and publish software-requirements documentation	4.1 Develop software requirements documentation according to organisational procedures.
	4.2 Submit software requirements, report to relevant personnel and obtain project approval according to organisational requirements.

RANGE STATEMENT

All range statements must be assessed:

1. **Relevant personnel** may include but not limited to

    - Supervisor
    - Team members
    - External clients

2. **Sources of information** may include but not limited to

    - Stakeholders/buyers
    - Users
    - Operators
    - Domain experts
    - Tester

3. **Client** may include but not limited to

    - Internal client
    - External client

4. **Modelling tools** may include but not limited to

    - Business process model and notation
    - Flowcharts

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. Why it is important to confirm the requirements and scope of the project with relevant personnel and what are the methods for doing so.
2. What are the relevant sources of information and business processes for determining requirements.
3. How to analyse client requirements, problem context and opportunities faced by the client.
4. Why it is important to document client requirements, project scope, related problems and sources of information according to organisational procedures and how to do so.
5. Why it is important to submit documented client requirements to relevant personnel to seek and receive feedback.
6. How to map business processes using modelling tools including unified modelling language and why it is important to do so.
7. Which methods are used to determine opportunities in business process efficiencies.
8. What are the functional and non-functional processes and what are the organisational procedures for documenting them.
9. How to analyse the technical and operational feasibility of the project and why it is important to do so.
10. Why it is important to determine the budget and schedule feasibility of the project and what methods are used to do so.
11. Why it is important to examine the purpose and intent of the project within the organisation and how to do so.
12. How to develop and document feasible solutions according to client requirements.
13. How to explore and document the feasibility of each solution and why it is important to do so.
14. Why it is important to examine alternatives against project constraints and how to do so.
15. What are the organisational procedures for documenting assumptions, dependencies and required resources.
16. How to produce a project risk analysis according to project requirements.
17. What are the organisational procedures for documenting future requirements.
18. Why it is important to develop software-requirements documentation and what are the organisational procedures for doing so.
19. Why it is important to submit software requirements reports to relevant personnel and obtain project approval.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA35303 Identify and resolve client requirements

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to determine client business system requirements and verify the accuracy of information gathered. It also deals with the analysis of client expectations and needs; the recommendation of business system changes and serves as a pre-requisite to designing the new or additional system.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Determine the context of business needs and problems	1.1 Identify the business problem to be investigated according to client requirements.
	1.2 Confirm system boundaries, scope and the development methodology to be used.
	1.3 Select practical information gathering methods and develop suitable questions according to business problems and project administration factors.
	1.4 Develop objectives, prioritise activities and discuss the expected outcomes with required personnel.
	1.5 Document business problems, chosen information gathering methods, objectives and expected outcomes according to organisational procedures.
	1.6 Submit documentation related to business problems to required personnel for substantiation according to industry best practices.
2. Gather information	2.1 Obtain and document information from identified users of the system and problems encountered according to organisational procedures.
	2.2 Consult, record and confirm business system requirements with the client according to organisational procedures.

		2.3 Analyse gathered information and establish problem specifications.
		2.4 Analyse physical requirements and identify changes required to implement new systems.
		2.5 Identify and document new system requirements and problems according to organisational procedures.
3.	Confirm system specifications	3.1 Check system requirements documentation and confirm that it meets client business needs with required personnel.
		3.2 Submit system requirements documentation for client review and verification.
		3.3 Make applicable changes to system requirements documentation as required and as indicated by the client
		3.4 Submit agreed system requirements documentation to the client and required personnel for final approval and sign-off according to industry best practices.

RANGE STATEMENT

All range statements must be assessed:

1. **Clients** may include but not limited to

   - Internal client
   - External client

2. **System** may include but not limited to

   - Legacy
   - Green Field
   - Organisation wide
   - Discrete

3. **Information gathering methods** may include but not limited to

   - Interviews
   - Surveys
   - Focus groups

4. **Project administration factors** may include but not limited to

   - Size of project
   - Duration of project
   - Budget
   - Number of persons involved
   - Type of project

5. **Required personnel** may include but not limited to

   - Supervisor
   - Team member
   - External client

6. **Physical requirements** may include but not limited to

   - System functionality
   - Geography
   - Environment
   - Client user
   - Cost constraints

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates should know and understand:

1. How to analyse client business systems to determine system boundaries, scope and development when investigating a business problem.
2. Why it is important to determine system boundaries, scope and development methodology when investigating a business problem and how to do so.
3. What are the different types of information gathering methods.
4. Why it is important to choose practical information gathering methods and develop suitable questions according to the business problem and how to do so.
5. How to substantiate documentation related to the business problem with required personnel and why this is important.
6. How to identify users of the system and the problems they encounter and why this is important.
7. How to fully analyse gathered information and establish problem specifications.
8. How to identify and document new system requirements and problems.
9. What are the physical requirements which must be analysed before implementing new systems.
10. Why it is important to systematically analyse physical requirements and identify changes required to implement new systems and how to do so.
11. How to systematically analyse physical requirements and identify changes required to implement new systems.
12. How to check system requirements documentation and confirm it meets client business needs with required personnel and why this is important.
13. Why it is important to make applicable changes to system requirements documentation as required and indicated by the client and how to do so.
14. How to submit agreed system requirements documentation to the client and required personnel for final approval and sign-off and why this is important.
15. What are the different types of client business processes.
16. How to identify critical client business requirements and objectives.
17. What are the procedures for documenting and confirming client business requirements.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

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(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA35403 Test software development

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to prepare, execute and maintain test plans, report test results and manage defects in the software development lifecycle.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Establish testing requirements	1.1 Identify and document appropriate testing required across the selected software development life cycle model.
	1.2 Discuss and confirm software development requirements with team members involved in the software development project.
	1.3 Identify and document required testing types and tools according to organisational procedures.
	1.4 Discuss and fully define testing benefits, standards and terms according to selected testing types.
	1.5 Identify organisational guidelines related to testing and test frameworks.
2. Prepare test plan documents	2.1 Identify test requirements including data structures and develop test according to software development requirements.
	2.2 Analyse and identify test data using multiple test-case design techniques.
	2.3 Define and design relevant test cases according to software development requirements.
	2.4 Document test plan according to organisational guidelines and industry standards.
3. Write and execute test procedures	3.1 Choose and adopt the appropriate unit test framework according to organisational procedures.

		3.2	Design and implement the required algorithm in test procedures.
		3.3	Track content, versions and maintain code repository according to required procedures.
		3.4	Perform test executions according to organisational procedures.
4.	Review test results	4.1	Record and analyse test results according to organisational procedures.
		4.2	Discuss test results with the team involved in the software development life cycle.
		4.3	Produce and save test progress reports according to organisational procedures.

RANGE STATEMENT

All range statements must be assessed:

1. **Software development life cycle model** may include but not limited to:

    - Waterfall
    - Spiral
    - Agile
    - Rapid application development
    - V-Model

2. **Testing types** may include but not limited to:

    - Functional
    - Non-functional
    - Maintenance

3. **Test-case design techniques** may include but not limited to:

    - Specification based
    - Structure based
    - Experience based
    - Implementation oriented
    - Error oriented

4. **Industry standards** may include but not limited to:

    - ISO/IEC- International Organisation for Standards
    - IEEE- Institute of Electrical and Electronics Engineers

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What testing is required across the software development life cycle.
2. Why it is important to identify the appropriate testing required across the software development life cycle and how to do so.
3. How to discuss and confirm software development requirements with team members involved in the software development project and why this is important.
4. Why it is important to systematically identify testing types and tools required and how to do so.
5. How to discuss and define testing benefits, standards and terms and why this is important.
6. Why it is important to identify organisational guidelines and frameworks related to testing.
7. Why it is important to identify test and script requirements including data structures to develop the test and how to do so.
8. Why it is important to systematically analyse and identify test data using multiple test-case design techniques and how to do so.
9. Which methods are used to define and design test cases and why it is important to do so.
10. Why it is important to document the test plan and script according to organisational guidelines and industry standards and how to do so.
11. How to choose and adopt the unit test framework according to organisational procedures and why this is important.
12. How to design and implement the required algorithm in test procedures.
13. Why it is important to track content, versions and maintain code repository and how to do so.
14. Why it is important to perform test executions according to organisational procedures.
15. Why it is important to record and analyse test results and how to do so.
16. Why it is important to discuss test results with the team involved in the software development life cycle.
17. Why it is important to produce and save test progress reports and what are the organisational procedures for doing so.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion
- Group project

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA35503 Build a user interface

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to design, build and test a user interface to specifications, including command-line, graphical user, web user and natural user interfaces.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Establish task requirements and prototype user interface	1.1 Gather and document user interface requirements and expectations from the client.
	1.2 Identify relevant organisational guidelines including accessibility guidelines related to user interface design.
	1.3 Determine the appropriate applications required to create prototypes according to client requirements.
	1.4 Build prototypes using suitable prototyping tools in the determined programming language.
	1.5 Review user interface prototypes with the client and edit as required.
2. Design and build user interface	2.1 Formulate application content flow systematically.
	2.2 Develop user interface components according to task requirements.
	2.3 Define user interface actions according to task requirements.
	2.4 Itemise user interface events according to task requirements. .
	2.5 Determine the required programming language according to task requirements.

	2.6 Build the user interface with required functionality according to task and organisational requirements in adherence with version control requirements.
3. Test and document user interface	3.1 Test the overall functionality of the user interface according to documented client requirements.
	3.2 Iterate user design and build until it meets documented client requirements.
	3.3 Document user interface and user requirements appropriately according to organisational procedures and guidelines.
	3.4 Obtain client sign-off for the completed user interface according to industry best practices.

RANGE STATEMENT

All range statements must be assessed:

1. **User interface** may include but not limited to:

    - Command-line
    - Graphical user
    - Web user
    - Natural user

2. **Client** may include but not limited to:

    - Internal
    - External

3. **Programming language** may include but not limited to:

    - Object-oriented
    - Structured
    - Functional
    - Mark-up

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. Why it is important to gather and document user interface requirements and expectations from clients and how to do so.
2. Why it is important to identify relevant organisational guidelines including accessibility guidelines related to user interface design.
3. How to determine the appropriate application required to create the prototype.
4. Why it is important to determine the appropriate application required to create the prototype and how to do so.
5. How to build the prototype using prototyping tools in the determined programming language.
6. How to review the user interface prototype with the client, edit the prototype as required and why it is important to do so.
7. How to systematically formulate the application content flow.
8. Why it is important to design user interface components according to task requirements and how to do so.
9. How to define user interface actions and why it is important.
10. How to itemise user interface events and why it is important.
11. Why it is important to determine the required programming language according to task requirements and how to do so.
12. How to build the user interface with required functionality according to task and organisational requirements and in adherence with version control requirements.
13. How to test the overall functionality of the user interface according to documented client requirements and why this is important.
14. Why it is important to iterate the user interface design and build, until test results meet documented client requirements and how to do so.
15. Why it is important to document the user interface and user requirements according to organisational procedures and guidelines and how to do so.
16. Why it is important to obtain client sign-off for the completed user interface according to industry best practices.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA35603 Build a database

Unit Descriptor: This unit deals with the knowledge, skills and attitudes required to build, implement, test and evaluate a database using an established design.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Confirm database design	1.1 Review and interpret database design documentation to identify organisational data management, access and security requirements.
	1.2 Evaluate the sufficiency of database access and security feature design against the organisational data security plan.
	1.3 Document and rectify inconsistencies between the database design and organisational data security plan according to organisational guidelines.
2. Create a prototype database	2.1 Develop a suitable prototype database according to the database design.
	2.2 Populate the database with current and suitable organisational data to test database implementation.
	2.3 Write appropriate conversion programmes to import data from existing systems in accordance with the specified scope in the database design documentation.
	2.4 Assess the functionality of the prototype with users, including identifying errors in programme codes, modifying user interfaces and reports and incorporating relevant feedback from users.
	2.5 Obtain user approval of the prototype in accordance with organisational guidelines and procedures.

3. Deploy the database	3.1 Develop an appropriate implementation plan for the database, aligned with user acceptance criteria according to organisational guidelines.
	3.2 Install a suitable database management system software on the network in accordance with the implementation plan.
	3.3 Populate database tables with suitable organisational data in accordance with the implementation plan.
	3.4 Implement appropriate security and access controls in accordance with database design documentation and the implementation plan.
	3.5 Test and document database output and security controls and record results appropriately in accordance with the database design documentation.
4. Evaluate the database	4.1 Review the database against user acceptance criteria and rectify discrepancies.
	4.2 Complete database documentation in accordance with user acceptance criteria and organisational guidelines.
	4.3 Identify and document user training requirements from the database design documentation.
	4.4 Seek and secure user acceptance of the database in accordance with user acceptance criteria and organisational guidelines.

RANGE STATEMENT

All range statements must be assessed:

1. **Database design** may include but not limited to:

    - Relational
    - Non-relational
    - Distributed
    - Centralised
    - Data structures
    - Queries
    - Reports
    - User interfaces

2. **User(s)** may include but not limited to:

    - End user
    - Programmer
    - Database administrator

3. **Test** may include but not limited to:

    - Structural
    - Functional
    - Non-functional

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. How to interpret database design documentation, including data structures, queries, reports, and user interfaces to identify organisational data management, access and security requirements.
2. How to evaluate the sufficiency of database access and security feature design against the organisational data security plan and why it is important to do so.
3. Why it is important to document and rectify inconsistencies systematically between the database design and organisational data security plan according to organisational guidelines and how to do so.
4. Which methods can be used to develop a suitable prototype database according to the database design.
5. Why it is important to populate the database with current and suitable organisational data to test database implementation and how to do so.
6. Why it is important to write appropriate conversion programmes to import data from existing systems in accordance with the scope specified in database design documentation and how to do so.
7. Which methods can be used to assess the functionality of the prototype with users, including identifying errors in programme codes, modifying user interfaces and reports and incorporating relevant feedback from users.
8. Why it is important to incorporate relevant feedback from users into the prototype and how to do so.
9. What methods are used to obtain user approval of the prototype in accordance with organisational guidelines and procedures.
10. Why it is important to develop an appropriate implementation plan for the database aligned with user acceptance criteria according to organisational guidelines and how to do so.
11. Why it is important to install suitable database management system software on the network in accordance with the implementation plan and how to do so.
12. Why it is important to populate database tables appropriately with suitable organisational data in accordance with the implementation plan and how to do so.
13. Why it is important to implement appropriate security and access controls in accordance with database design documentation and the implementation plan and how to do so.
14. Which methods are used to test and document database output and security controls and record results appropriately in accordance with database design documentation.
15. Why it is important to systematically review the database against user acceptance criteria and rectify discrepancies and how to do so.

16. Why it is important to complete database documentation in accordance with user acceptance criteria and organisational guidelines and how to do so.
17. How to identify and document user training requirements from database design documentation and why it is important to do so.
18. Why it is important to seek and secure user acceptance of the database in accordance with user acceptance criteria and organisational guidelines and how to do so.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA35703 Apply programming skills in multiple languages

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to carry out programming activities involving coding, debugging and testing of codes. It also addresses creating applications using different programming languages and development platforms.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Establish task requirements and define data structures and code	1.1 Confirm user requirements and specifications according to organisational procedures.
	1.2 Design, define and use appropriate data structures that are aggregations of other data types.
	1.3 Code using appropriate user-defined data structures considering the lifecycle and performance impact of data structures.
2. Code using statistical packages	2.1 Use programming language-provided facilities to create and maintain sorted data structures.
	2.2 Code using basic sorting and searching techniques.
3. Develop, test and document files and applications	3.1 Build applications according to user requirements.
	3.2 Employ integrated development environment project maintenance facilities and automate programme building using created files,
	3.3 Develop programme specification solutions according to coding standards.
	3.4 Design algorithms and document, construct and test applications using target programming language according to the problem description.

	3.5 Document completed applications according to organisational procedures.
4. Debug, document and test code	4.1 Use stand-alone debugging tools and tools provided by an integrated development environment (IDE).
	4.2 Trace code execution and examine variable contents using a debugger.
	4.3 Develop and document maintainable code using internal or external documentation tools according to organisational guidelines and coding standards.
	4.4 Design and document tests according to organisational guidelines.
	4.5 Perform test, capture and record test results to confirm compliance according to project specifications.

RANGE STATEMENT

All range statements must be assessed:

1. **Application** may include but not limited to:

   - Desktop
   - Web
   - Internet of Things

2. **Programming language** may include but not limited to:

   - Object-oriented
   - Structured
   - Functional
   - Mark-up
   - Procedural

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What are the organisational procedures for establishing user requirements and specifications.
2. Why it is important to establish user requirements and specifications and how to do so.
3. What methods are used to design, define and use appropriate data structures that are aggregate of other data types and how to do so.
4. Why it is important to code using appropriate user-defined data structures and how to do so.
5. How to code using a modular programming approach, including pass-by-reference parameter passing and why it is important to do so.
6. Why it is important to create and manipulate 2-D data structures using code and how to do so.
7. How to code using basic sorting and searching techniques and why it is important to do so.
8. Why it is important to code binary file-handling solutions using suitable random-access algorithms and how to do so.
9. Why it is important to build application according to user requirement and how to do so.
10. Why it is important to access multiple source-code files and how to do so.
11. Why it is important to employ integrated development environment project maintenance facilities and automate programme building using created files,
12. How to develop programme specification solutions according to coding standards and why it is important to do so.
13. What methods are used to design, document, construct and test applications according to the problem description using target programming language.
14. Why it is important to document completed applications according to organisational procedures.
15. Why it is important to use stand-alone debugging tools and tools provided by integrated development environment and how to do so.
16. Why it is important to trace code execution and examine variable contents using a debugger and how to do so.
17. How to develop and systematically document maintainable code according to organisational guidelines and coding standards and why it is important to do so.
18. Why it is important to apply internal documentation to code using documentation tools available in target programming language and how to do so.
19. How to design and document suitable tests according to organisational guidelines and why it is important to do so.
20. What methods are used to test produced code and confirm compliance with programme specification systematically and why it is important to do so.
21. Why it is important to capture and record test results accurately and according to organisational guidelines and how to do so.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA35803 Identify and evaluate emerging technologies and practices

Unit Descriptor: The unit deals with the knowledge, skills and attitudes required to identify emerging technologies and practices in the ICT sector and evaluate their potential impact on organisational practices.

ELEMENT	PERFORMANCE CRITERIA

Candidates must be able to:

1. Assess and confirm emerging technologies and practices	1.1 Access and evaluate reputable sources of information on emerging technologies and practices in the IT industry according to industry best practices.
	1.2 Identify and document emerging technologies and practices relevant to the organisational context.
2. Evaluate the impact of emerging technologies and practices	2.1 Assess the features and functions of emerging technologies and practices to determine advantages and disadvantages relevant to the organisational context.
	2.2 Monitor and document the potential impact of emerging technologies and practices on current organisational technologies and practices.
	2.3 Seek and obtain feedback from organisational representatives on the assessment of emerging technologies and practices and incorporate relevant feedback into the report according to organisational standards.
3. Develop strategies to prepare for emerging technologies and practices	3.1 Identify and confirm practicable strategies to prepare the organisation for the impact of emerging technology and practices according to organisational procedures.

3.2 Verify and document required practical changes to organisational technologies and practices based on strategies to determine the organisational response.

3.3 Seek and obtain relevant feedback on the strategy and organisational response from the organisational representative.

3.4 Document and incorporate relevant feedback into the strategy and organisational response according to organisational procedures.

RANGE STATEMENT

All range statements must be assessed:

1. **Sources of information** may include but not limited to:

    - Horizon scanning
    - Environmental scanning

2. **Assess** may include but not limited to:

    - Strengths, Weakness, Opportunities and Threats (SWOT) Analysis
    - Political, Economic, Social, Technological (PEST) Analysis

3. **Feedback** may include but not limited to:

    - Surveys
    - Interviews
    - Focus groups

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What are the different types of organisational technologies and practices in the organisational context.
2. How to identify and evaluate reputable sources of information on emerging technologies and practices in ICT.
3. Why it is important to identify and evaluate reputable sources of information on emerging technologies and practices in ICT and how to do so.
4. What are the different types of research approaches for identifying emerging techniques and practices in ICT.
5. Why it is important to identify and document emerging ICT technologies and practices relevant to the organisational context and how to do so.
6. How to evaluate the features and functions of emerging ICT technologies and practices systematically to determine the advantages and disadvantages relevant to organisational context.
7. Why is it important to systematically assess and document potential impacts of emerging technologies and practices on current ICT technologies and practices and why it is important to do so.
8. Which methods are used to assess the potential impact of emerging technologies and practices on current ICT technologies and practices.
9. Why it is important to seek, obtain and document feedback and how to do so.
10. How to incorporate relevant feedback into reports.
11. How to plan for technology implementation and why it is important to do so.
12. Which methods are used in technology implementation planning.
13. How to develop a strategy to prepare organisations for the impact of emerging technology and practices.
14. Why is it important to develop practicable strategies to prepare the organisation for the impact of emerging technology and practices.
15. Why is it important to identify and document practical changes to organisational technologies and practices.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

U68402 Contribute to the protection of the environment

Unit Descriptor: This unit deals with the knowledge, skills and attitudes required to conduct work activities in a manner that protects the environment. Candidates should take steps to minimise any negative impact on the environment by completing tasks and activities in a way which causes as little damage or disturbance as possible to the environment while following organisational procedures.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Work in an environmentally conscious way	1.1 Perform duties in accordance with relevant policies and legislation.
	1.2 Execute duties in a manner which minimises environmental damage.
	1.3 Operate and handle equipment and materials in a manner that minimises environmental damage.
2. Contribute to continuous improvements in protecting the environment	2.1 Identify instances of likely or actual environmental damage and take appropriate action.
	2.2 Identify improvements to procedures and practices in terms of good environmental practice and report to relevant persons.
	2.3 Dispose of hazardous and non-hazardous waste according to approved legislative procedures and practices.
	2.4 Contribute to sustainable development particularly in the conservation of energy, water, use of resources and equipment to minimise environmental damage.

RANGE STATEMENT

All range statements must be assessed:

1. **Relevant policies and legislation** may include but not limited to:

    - Organisational policies
    - Health and safety at work
    - Environmental legislation
    - Solid waste management policies
    - Recyclable policies

2. **Manner which minimises environmental damage** may include but not limited to:

    - Using recycled/reused items and materials where appropriate
    - Disposing of polluting substances safely
    - Reducing the volume of waste
    - Using biodegradable and eco-friendly chemicals
    - Planning tasks to reduce the use of fuel and electricity

3. **Equipment and materials** may include but not limited to:

    - Hand tools
    - Power tools
    - Personal protective equipment
    - Cleaning chemicals
    - Soaps and santisers
    - Paper towels
    - Garbage disposal bags
    - Cloths and towels
    - Containers
    - Access equipment

4. **Hazardous waste** may include but not limited to:

    - Oils
    - Chemicals and solutions
    - Harmful materials (asbestos, fibreglass)
    - Electronic equipment
    - Organic hazards (pest excrement, pest carcasses)

5. **Non-hazardous waste** may include but not limited to:

    - Food
    - Plant matter
    - paper

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What are the relevant policies and legislation governing environmental protection.
2. How to recognise any likely or actual environmental damage
3. What are the appropriate actions to take in the discovery of likely or actual environmental damage.
4. What are the ways in which tools and materials should be used to minimise environmental damage.
5. What are the different types of pollution.
6. What are the consequences of pollution.
7. How to recognise wastage of energy, water, equipment and materials.
8. What are the methods of working that will minimise pollution and wastage of resources.
9. What are the types of damage which may occur, the impact these can have on the environment and corrective actions to be taken.
10. What are the methods of waste disposal which will minimise the risk to the environment.
11. What are the organisational requirements to prevent wastage.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on no less than three (3) occasions**. This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
- Case study and scenario analysis
- Role play/simulation

(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **must not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

U00306 Maintain a safe and secure working environment

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to contribute to maintaining a safe and secure working environment. It addresses the essential abilities of communicating effectively; working in a safe and hygienic manner, problem solving; keeping records; operating within organizational procedures and meeting legal requirements.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Maintain personal health and hygiene	1.1 Wear clean, smart and appropriate clothing in accordance with job role. .
	1.2 Wear hair neat and tidy in accordance with organisational requirements.
	1.3 Wear jewelry, perfume and cosmetics in line with organisational requirements.
	1.4 Confirm that cuts, grazes and wounds are treated by the appropriate person.
	1.5 Report illness and infections to the appropriate person according to organisational health and safety requirements.
	1.6 Carry out work in accordance with hygiene practices that must be adhered to within the working environment.
	1.7 Carry out work in an efficient and organised manner in accordance with appropriate organisational procedures and legal requirements.
2. Carry out procedures in the event of a fire	2.1 Raise the alarm immediately in the event of a fire in accordance with established procedures.
	2.2 Use firefighting equipment in accordance with manufacturer's instructions and organisational procedures.

		2.3 Adhere to safety and emergency signs in accordance with organisational health and safety requirements.
		2.4 Follow correct evacuation procedures in a calm, orderly manner in accordance with organisational procedures.
		2.5 Complete registration once assembly points are reached.
		2.6 Deal with unexpected situations and inform appropriate persons where necessary.
		2.7 Carry out work in an organised and efficient manner in accordance with safety and health regulations and organisational procedures.
3.	Deal with the discovery of suspicious items/packages	3.1 Leave suspicious items and packages untouched in accordance with established procedures.
		3.2 Report suspicious items and packages in accordance with organisational procedures.
		3.3 Follow correct safety and security procedures in a calm and orderly manner in accordance with required procedures.
		3.4 Deal with unexpected situations effectively and inform the appropriate persons where necessary.
		3.5 Carry out work in an organised and efficient manner in accordance with safety and health regulations and organisational procedures.
4.	Carry out procedures in the event of an accident	4.1 Perform basic first aid in the event of an accident following recommended procedures.
		4.2 Seek assistance from the appropriate person responsible for first aid in accordance with organisational health and safety requirements.
		4.3 Contact emergency services in accordance with organisational procedures.

		4.4 Take appropriate action to ensure the safety of injured and uninjured persons within the limits of individual responsibility and organisational requirements.
		4.5 Give comfort and reassurance to injured persons according to organisational health and safety requirements.
		4.6 Report and documents in accordance with organisational procedures.
		4.7 Deal with unexpected situations and inform the appropriate persons where necessary.
		4.8 Carry out work in an organised and efficient manner in accordance with safety and health regulations and organisational procedures.
5.	Maintain a safe work environment for customers, staff and visitors	5.1 Identify and promptly rectify hazards and potential hazards to the safety of customers, staff and visitors.
		5.2 Make customers, staff and visitors aware of hazards and potential hazards in accordance with organisational procedures.
		5.3 Take cautionary measures to warn customers, staff and visitors of hazards and potential hazards.
		5.4 Report accidents, damage and non-rectifiable hazards to the appropriate person.
		5.5 Deal with unexpected situations and inform the appropriate persons where necessary.
		5.6 Carry out work in an organised and efficient manner in accordance with safety and health regulations and organisational procedures.
6.	Maintain a secure work environment for customers, staff and visitors	6.1 Identify potential security risks and report to the appropriate person in accordance with organisational procedures.
		6.2 Secure customer and staff areas against unauthorised access.
		6.3 Secure establishment storage and security facilities against unauthorised access.

6.4 Report establishment, staff or customer lost property to the appropriate person.

6.5 Challenge suspicious individuals or promptly report them to the appropriate person in accordance with organisational procedures.

6.6 Deal with unexpected situations and inform the appropriate persons where necessary.

6.7 Carry out work in an organised and efficient manner in accordance with safety and health regulations and organisational procedures.

RANGE STATEMENT

All range statements must be assessed:

1. **Legal requirements** may include but not limited to:

    - Relevant health and safety legislation
    - Relevant industry regulations

2. **Fire** may include but not limited to:

    - Freely burning combustibles i.e. paper, cardboard, wood etc.
    - Liquid or gas
    - Electrical
    - Metallic

3. **Firefighting equipment** may include but not limited to:

    - Hose
    - Fire blanket
    - Foam extinguisher
    - Water extinguisher
    - Carbon dioxide extinguisher
    - Sand
    - Wet blanket

4. **Regulations** may include but not limited to:

    - Legislation
    - Manufacturer's
    - Supplier's
    - Current legislation relating to safe and hygienic working practices when maintaining a safe environment for customers, staff and visitors

5. **Suspicious items and packages** may include but not limited to:

    - Unattended bags, packages and parcels
    - Unusual and unaccounted for deliveries

6. **Accidents** may include but not limited to:

    - Accidents involving injury to customers, staff and visitors

7. **Basic first aid** may include but not limited to:

    - Bandaging
    - Ice/cold pack
    - Heimlich manoeuvre

8. **Appropriate action** may include but not limited to:

    - Removing and lifting injured persons
    - Rendering basic first aid

9. **Responsible person** may include but not limited to:

    - Company nurse
    - Safety officer

10. **Hazards and potential hazards** may include but not limited to:

    - Suspicious items
    - Areas and incident which threaten the safety of customers, staff and visitors

11. **Security risks** may include but not limited to:

    - Prohibited area
    - Suspicious items
    - Unauthorised open entrances/exits
    - Missing keys

12. **Customer and staff areas** may include but not limited to:

    - Storerooms
    - Safes
    - Cash boxes

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. Why it is important to comply with health and safety legislation.
2. Where and from whom information on current health and safety legislation can be obtained.
3. What general hygienic practices must be adhered to in own work environment.
4. Why the correct clothing, footwear and headgear should be worn at all times.
5. Why and to whom illness and infections should be reported.
6. Why it is important to maintain good personal hygiene.
7. What are the possible causes of fire in the working environment.
8. What preventative actions can be taken to minimise the risk of fire.
9. What organisational procedures should be followed in the event of fire.
10. Where alarms are located and how to activate them.
11. Why a fire should never be approached unless it is safe to do so.
12. Why suspicious items and packages should be left untouched.
13. Why suspicious items and packages should be reported.
14. What basic first aid should be applied in the event of an accident.
15. Who is the person responsible for first aid.
16. What emergency services are available in the event of an accident and why it is important to contact them.
17. What action should be taken to ensure the safety of the injured and the uninjured.
18. What are the organisational procedures for reporting an accident.
19. What cautionary measures can be taken to warn customers staff and visitors of potential hazards.
20. What are the potential hazards within the working environment.
21. Why suspicious items and packages must not be approached or tampered with.
22. Where first aid equipment and the accident register are located.
23. Why it is important to use correct lifting techniques.
24. What are the employee's responsibilities in relation to health and safety regulations.
25. Which keys, property and areas should be secured from unauthorised access at all times.
26. Why it is essential to be aware of potential security risks.
27. Why procedures relating to lost property must be adhered to.
28. Why only disclosable information should be given to customers.
29. Why it is important to report all unusual/non-routine incidents to the appropriate person.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out all of the elements, meeting **all** the performance criteria, underpinning knowledge and range on more than one occasion. This evidence must come from a real work environment.

Evidence must be provided of dealing with **at least one (1) security risk;** working in **two (2) types of customer and staff areas** and dealing with **two (2) types of storage and facilities.**

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Photographs of yourself at work
- Entries made by you into the organization's incident book
- Correspondence written by you drawing attention to health and safety issues
- Witness testimony
- Personal statements from yourself describing how you carry out your duties

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **may** be used for **performance criteria 5.2, 5.3 and 5**

UA35903 Contribute to cyber security risk management

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to contribute to cyber security risk management. It addresses assisting in the development and management of associated risk management strategies.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Recommend risk management strategies	1.1 Consult with stakeholders to determine the scope of risk management appropriate to the organisation and industry.
	1.2 Review relevant critical cyber risk management strategies appropriate to the agreed level of risk.
	1.3 Contribute to developing suitable cyber security response options according to organisational policies and procedures.
	1.4 Present practical options for risk management strategies for approval within the scope of your role.
	1.5 Document approved risk management strategies according to organisational guidelines.
2. Support the implementation of approved risk management strategies	2.1 Provide clear communication of approved risk management strategies to relevant personnel according to organisational guidelines.
	2.2 Monitor cyber security risks according to selected risk management strategies.
	2.3 Contribute to the determination of compliance with implemented cyber risk mitigation strategies.

	2.4 Address non-compliance within the scope of individual role and escalate where required according to organisational policies and procedures.
	2.5 Establish suitable feedback processes that provide warning of potential new risks according to organisational requirements.
3. Review and revise implemented risk management strategies	3.1 Identify practical benchmarks to track the effectiveness of risk management strategies according to organisational requirements.
	3.2 Support the evaluation of the effectiveness of implemented strategies according to organisational guidelines.
	3.3 Update risk management strategies with new information as required according to organisational procedures.

RANGE STATEMENT

All range statements must be assessed:

1. **Stakeholders** may include but not limited to:

    - Management
    - Users
    - Information communication

2. **Relevant personnel** may include but not limited to:

    - Supervisor
    - Team member
    - External client

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. Why it is important to consult with stakeholders to determine the scope of risk management appropriate to the organisation and industry and how to do so.
2. How to review relevant critical cyber risk management strategies appropriate to the agreed level of risk and why it is important to do so.
3. Why it is important to assist in developing suitable cyber security response options according to organisational policies and procedures and how to do so.
4. Why it is important to present practical options for risk management strategies for approval within the scope of your role and how to do so.
5. Why it is important to document approved risk management strategies according to organisational guidelines and how to do so.
6. How to support clear communication of approved risk management strategies to relevant personnel according to organisational guidelines and why it is important to do so.
7. Why it is important to actively contribute to monitoring cyber security risks according to selected risk management strategies and how to do so.
8. How to assist in determining compliance with implemented cyber risk mitigation strategies and why it is important to do so.
9. Which methods can be used to address non-compliance within the scope of your role and how to escalate promptly where required according to organisational policies and procedures.
10. What are the suitable feedback processes that provide warning of potential new risks according to organisational requirements.
11. What methods are used to identify practical benchmarks to track the effectiveness of risk management strategies according to organisational requirements.
12. Why it is important to support the evaluation of the effectiveness of implemented strategies according to organisational guidelines and how to do so.
13. Why it is important to update risk management strategies with new information as required according to organisational procedures and how to do so.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA36003 Comply with ethics and privacy policies in the ICT environment

Unit Descriptor: This unit deals with the knowledge, skills and attitudes required to comply with and implement policies concerning the protection and lawful use of intellectual property, organisational ethics and privacy policies.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Establish organisational requirements to comply with intellectual property, ethics and privacy policy procedures	1.1 Locate types of existing and potential intellectual property, ethics and privacy policies and procedures within the organisation.
	1.2 Determine and access the organisation's intellectual property, ethics and privacy policy and procedures.
	1.3 Identify individual role in protecting and fulfilling the requirements of the organisation's intellectual property, ethics and privacy policy and procedures to avoid infringement in those areas.
	1.4 Provide appropriate support and advice to relevant personnel about the organisation's operations and intellectual property, ethics and privacy policy and procedures.
2. Evaluate and implement organisational intellectual property, ethics and privacy policy and procedures	2.1 Monitor whether relevant personnel are abiding by organisational intellectual property, ethics and privacy policy and procedures within the constraints of one's own work.
	2.2 Assess whether implemented intellectual property, ethics and privacy policies and procedures help to prevent infringement within the constraints of one's own work.
	2.3 Contribute to the maintenance, development and implementation of intellectual property, ethics and privacy policy and procedures.

	2.4 Communicate to relevant personnel, potential risks and opportunities for improvement of intellectual property, ethics and privacy policy and procedures according to organisational policy and procedures.
3. Identify non-compliance incidents and make recommendations	3.1 Contribute to the organisational risk assessment and identification process within the constraints of one's own work.
	3.2 Review internal and external non-compliance and intellectual property infringement incidents within the constraints of individual work according to organisational guidelines
	3.3 Recommend suitable actions to overcome non-compliance incidents to relevant personnel according to organisational guidelines.
	3.4 Determine and report areas of potential risk and non-compliance to relevant personnel according to organisational procedures.

RANGE STATEMENT

All range statements must be assessed:

1. **Relevant personnel** may include but not limited to:

    - Supervisor
    - Team member
    - External client

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What are the different types of existing and potential intellectual property, ethics and privacy policy and procedures within the organisation.
2. How to interpret the organisation's intellectual property, ethics and privacy policy and procedures.
3. How to identify your own role in protecting and fulfilling the requirements of the organisation's intellectual property, ethics and privacy policy and procedures according to organisational policy and procedures.
4. Why it is important to provide appropriate support and advice to relevant personnel about the organisation's operations and intellectual property, ethics and privacy policy and procedures and how to do so
5. Why it is important to monitor whether relevant personnel are abiding by organisational intellectual property, ethics and privacy policy and procedures within the constraints of one's own work and how to do so.
6. How to evaluate whether implemented intellectual property, ethics and privacy policy and procedures help prevent intellectual property and privacy infringement within the constraints of one's own work.
7. Why it is important to assist with the maintenance, development and implementation of intellectual property, ethics and privacy policy and procedures and how to do so.
8. Why it is important to clearly communicate the potential risks and opportunities for improvement of intellectual property, ethics and privacy policy and procedures to relevant personnel and how to do so.
9. Why it is important to contribute to the organisational risk assessment and identification process within the constraints of one's own work and how to do so.
10. Why it is important to fully review internal and external non-compliance and intellectual property infringement incidents according to organisational guidelines within the constraints of one's own work and how to do so.
11. Which methods can be used to recommend suitable actions to overcome non-compliance incidents to relevant personnel according to organisational guidelines.
12. Why it is important to determine and promptly report areas of potential risk and non-compliance to relevant personnel according to organisational procedures and how to do so.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** of the elements, meeting **all** the performance criteria, range and underpinning knowledge **on more than one occasion**. This evidence must come from a real working environment.

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used**, except in exceptional circumstances where natural work evidence is unlikely to occur.

UA36103 Develop an entrepreneurial strategy

Unit Descriptor:

This unit deals with the knowledge, skills and attitudes required to develop an entrepreneurial strategy to complement management competencies and experience necessary for entrepreneurs to meet the requirements and demands of a specific opportunity.

ELEMENT	PERFORMANCE CRITERIA
Candidates must be able to:	
1. Identify the nature of entrepreneurship	1.1 Establish the main concepts associated with entrepreneurship.
	1.2 Determine factors which influence entrepreneurship locally and regionally.
	1.3 Ascertain the importance of entrepreneurship to economic development and employment.
	1.4 Present the findings of research conducted on entrepreneurial ventures and successes in the Caribbean region.
	1.5 Research and confirm the differences between wage employment and entrepreneurial ventures.
2. Identify and assess entrepreneurial characteristics	2.1 Conduct relevant research and confirm required entrepreneurial characteristics.
	2.2 Assess and rank identified entrepreneurial characteristics.
	2.3 Verify the process and discipline that enables individuals to evaluate and shape choices and initiate effective action.
	2.4 Identify factors that will assist in managing risks and uncertainties of the future while maintaining a future orientated frame of mind.

3. Develop a self-assessment profile	3.1 Use relevant self-assessment tools/methods to identify personal entrepreneurial potential.
	3.2 Apply problem-solving techniques and principles to solve business related problems.
	3.3 Obtain appropriate feedback from others to identify blind spots and reinforce or change existing perceptions of strengths or weaknesses.
4. Create an entrepreneurial strategy	4.1 Develop a profile of the past that includes accomplishments, preferences and work styles and identify what one would like to achieve in the future.
	4.2 Identify and accept personal responsibility in areas for development to determine commitment, perseverance and orientation towards goals.
	4.3 Develop written guidelines to obtain honest, straightforward and helpful feedback that is both positive and negative to facilitate reviews.
	4.4 Develop a framework and process of setting goals which demands time, self-discipline, commitment, dedication and practice.
	4.5 Establish goals that are specific, measurable, achievable, realistic and time oriented.
	4.6 Establish how priorities including identifying conflicts and trade-offs may be resolved.
	4.7 Identify potential problems, obstacles and risks in meeting goals.
	4.8 Identify specific action steps that are to be performed to accomplish goals.

4.9 Indicate the methods by which results will be measured.

4.10 Establish milestones for reviewing progress and align these to specific dates on a calendar.

4.11 Identify required resources and relevant sources to obtain them.

4.12 Review processes and periodically revise goals to ensure that they are achieved.

RANGE STATEMENT

All range statements must be assessed:

1. **Concepts** may include but not limited to:

    - Risk
    - Entrepreneurship
    - Macro-screening
    - Micro-screening
    - Competition
    - Wage employment

2. **Factors** may include but not limited to:

    - Market conditions
    - Markets – demand/supply
    - Global trends
    - Level of economic activities
    - Funding
    - Economic stability
    - Social stability
    - Resources available

UNDERPINNING KNOWLEDGE AND SKILLS

Candidates must know and understand:

1. What is a personal entrepreneurial profile system.
2. Explain the following effective management systems.
    - marketing
    - operations/productions
    - finance
    - administration
    - law
3. How to measure feedback.
4. What are the methods for developing a personal business plan.
5. What is the difference between entrepreneurial and management culture.
6. How to determine barriers to entrepreneurship.
7. How to minimise exposure to risk.
8. How to exploit any available resource.
9. How to tailor a reward system to meet a particular situation.
10. How to effectively plan and execute activities.
11. How to use computer technology to undertake assessments.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** the performance criteria, range and underpinning knowledge. This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Products of work
- Observation
- Written/ oral questioning
- Written evidence
- Witness testimony
- Professional discussion

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **should not be used** except in exceptional circumstances where natural work evidence is unlikely to occur.

Level 3 Glossary of Terms

Assessment methods

The methods which can be used to determine competence in performance and underpinning knowledge.

Assessors

The Assessor's role is determined whether evidence presented by a candidate for assessment within the programme, meets the required standard of competence in the relevant unit or element. The Assessor needs to be competent to assess to national standards in the area under assessment.

Approved Centre

Organization/Centre approved by the TVET Council to offer full National Vocational Qualifications.

Case Studies

In situations where it is difficult for workplace assessment to take place, case studies can offer the candidate an opportunity to demonstrate potential competence.

A case study is a description of an actual or imaginary situation presented in some detail. The way the case study is presented will vary depending upon the qualification, but the most usual methods are written, taped or filmed.

The main advantage of a case study is the amount of evidence of underpinning knowledge they can generate and the specific nature of the evidence produced.

Competence

In the context of vocational qualifications, competence means: the ability to carry out prescribed activities to nationally pre-determined standards in an occupation. The definition embraces cognitive, practical and behavioural skills, underpinning knowledge and understanding and the ability to react appropriately in contingency situations.

Element

An element is a description of an activity which a person should be able to do. It is a description of an action, behaviour or outcome which a person should be able to demonstrate.

Explanation of NVQ Levels

NVQs cover five (5) levels of competence, from entry level staff at Level 1 through to senior management at Level 5.

Level 3 Glossary of Terms

Level 1 - Entry Level

Recognizes competence in a range of varied work activities performed in a variety of contexts. Most work activities are simple and routine. Collaboration with others through work groups or teams may often be a requirement. Substantial supervision is required especially during the early months evolving into more autonomy with time.

Level 2 - Skilled Occupations:

Recognizes competence in a broad range of diverse work activities performed in a variety of contexts. Some of these may be complex and non-routine and involve some responsibility and autonomy. Collaboration with others through work groups or teams and guidance of others may be required.

Level 3 - Technician and Supervisory Occupations:

Recognizes competence in a broad range of complex, technical or professional work activities performed in a wide variety of contexts, with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and the allocation of resources are often a requirement. The individual is capable of self-directed application, exhibits problem solving, planning, designing and supervisory capabilities.

Level 4 - Technical Specialist and Middle Management Occupations:

Recognizes competence involving the application of a range of fundamental principles and complex techniques across a wide and unpredictable variety of contexts. Requires very substantial personal autonomy and often significant responsibility for the work of others, the allocation of resources, as well as personal accountability for analysis, diagnosis, design, planning, execution and evaluation.

Level 5 - Chartered, Professional and Senior Management Occupations:

Recognizes the ability to exercise personal professional responsibility for the design, development or improvement of a product, process, system or service. Recognizes technical and management competencies at the highest level and includes those who have occupied positions of the highest responsibility and made outstanding contribution to the promotion and practice of their occupation.

External Verifier

The External Verifier is trained and appointed by the TVET Council and is competent to approve and ensure an approved Centre's quality of provision.

Internal Verifier

The Internal Verifier acts in a supporting role for Assessors to ensure consistent quality of assessment and competence. They need to be competent to assess to national standards in the area under assessment.

NVQ

Level 3 Glossary of Terms

National Vocational Qualifications (NVQs) are work-based qualifications that assess an individual's competence in a work situation and certify that the individual can perform the work role to the standards expected in employment.

NVQs are based on national occupational standards of competence drawn up by standards-setting bodies known as Industry Lead Bodies. The standards describe the level and breadth of performance that is expected of persons working in the industry or sector which the NVQ covers.

NVQ Coordinator

Within each approved Centre offering NVQs, there is a centre contact who has overall responsibility for the operation and administration of the NVQ system.

Observation

Observation of the candidate carrying out his/her job in the workplace is the assessment method recommended in the vast majority of units and elements. Observation of staff carrying out their duties is something that most supervisors and managers do every day.

Performance criteria

Performance criteria indicate what is required for the successful achievement of an element. They are descriptions of what you would expect to see in competent performance.

Product of Work

This could be items produced during the normal course of work, which can be used for evidence purposes such as reports, menus, promotional literature, training plans, etc.

Questioning

Questioning is one of the most appropriate ways to collect evidence to assess a candidate's underpinning knowledge and understanding.

Questioning can also be used to assess a candidate in those areas of work listed in the range which cannot be assessed by observation. Guidance on when this assessment method can be used is given in the assessment guidance of each individual element.

As an assessment method, questioning ensures you have all of the evidence about a candidate's performance. It also allows you to clarify situations.

Range statements

The range puts the element of competence into context. A range statement is a description of the range of situations to which an element and its performance criteria is intended to apply.

Range statements are prescriptive therefore each category must be assessed.

Role-plays

Role-plays are simulations where the candidate is asked to act out a situation in the way he/she considers "real" people would behave. By using role-play situations to assess a candidate you are able to collect evidence and make a judgment about how the candidate is most likely to perform. This may be necessary if the range specified includes a situation in which the candidate is unlikely to find himself/herself in the normal course of their work, or where the candidate needs to develop competence, before being judged competently, for example, in a disciplinary situation,

Simulations

Where possible, assessment should always be carried out by observing **natural performance** in the workplace. **Simulated performance,** however, can be used where specified to collect evidence about an aspect of the candidate's work which occurs infrequently or is potentially hazardous; for example, dealing with fires.

By designing the simulated situation, briefing the candidate and observing his/her performance, you will be able to elicit evidence which will help you judge how a candidate is **most likely** to perform in real life.

Supplementary evidence

Supplementary evidence can be used to confirm and support performance evidence. Types of supplementary evidence include witness testimonies, reports, journals or diaries, records of activities, personal statements, simulation (see note in glossary).

Underpinning knowledge

Underpinning knowledge indicates what knowledge is essential for a person to possess in order to successfully achieve an element and prove total competence.

Units

A unit of competence describes one or more activities which form a significant part of an individual's work. Units are accredited separately but in combination can make up a vocational qualification. There are three categories of units:

Level 3 Glossary of Terms

Mandatory units - are core to a qualification and must to be completed.

Optional units - candidates must choose the required number of individual units, specified in the qualification structure, to achieve the qualification.

Additional units - are units which the candidate can undertake but are not a requirement to achieve a qualification

Work-based projects

Work-based projects are a useful way for you to collect evidence to support any decision you make about a candidate's performance. They are particularly appropriate in determining the level of a candidate's underpinning knowledge and understanding where it may be insufficient to rely only on questioning observation.

A project often involves the identification of a solution to a specific problem identified by you and/or the candidate (such as looking at ways to redress a recent drop in sales) or may be a structured programme of work built around a central situation or idea (such as the introduction of a new job rostering process).