

Unit 206 Test Software Components Level 2 (Core)**Rationale**

The aim of this unit is to enable candidates to competently test software components by preparing test data and test plans and analysing the results.

There are 4 outcomes to this unit. The candidate will be able to:

1. prepare for testing
2. record the results of tests
3. analyse test results
4. identify Health and Safety requirements

Guided learning hours

The recommended guided learning hours for this unit are 30 hours

Connections with other awards**NVQ links**

Outcomes	This award contributes to the knowledge and understanding of the following elements of NVQ(s)
1,2 3	<p><i>Developing IT Programs NVQ Level 2:</i></p> <p>217.1 Contribute to software testing</p> <p>217.2 Assist with the analysis of software tests</p> <p><i>Using IT NVQ Level 3</i></p> <p>206.1 Identify the hazards and evaluate the risks in your workplace</p> <p>206.2 Reduce the risks to Health and Safety in your workplace</p>

Key Skills links

Communication	C1.2
Application of Number	None
Information technology	None
Working with others	None
Improving own learning	LP3.1, LP3.2, LP3.3
Problem solving	PS3.1, PS3.2, PS3.3

Assessment

Assessment will be by means of a **set assignment** covering practical activities and a **multiple choice test** covering underpinning knowledge

Outcome 1: Prepare for testing

	Candidate's signature	Date
<p>Practical activities The candidate will be able to:</p> <ol style="list-style-type: none"> 1. identify from a given specification the tests required to carry out functional testing 2. prepare a test plan 3. prepare test data 		
<p>Underpinning knowledge The candidate will be able to:</p> <ol style="list-style-type: none"> 1. describe 'white box testing' as logical testing dependant on the logic of the code used in software 2. describe 'black box testing' as functional testing carried out independently of the code used in software 3. describe the difference between top-down and bottom-up testing 4. state that the purpose of testing is to prove that software matches its specification and to find errors so that they can be corrected 5. list the essential features of a test plan (Appendix A) <ul style="list-style-type: none"> • test number • date • purpose/type of test • expected outputs for stated inputs 6. describe the importance of designing test data to confirm a program works correctly under normal and exceptional circumstances <ul style="list-style-type: none"> • valid • invalid • boundary 7. state that recovery testing is done to ensure that data can be recovered after a hardware/software failure 8. state that performance testing is required to ensure that a system can deal with large volumes of data and still achieve the response times required by the user 9. describe how performance testing may require software to be written to generate large volumes of data 10. state that to comply with quality control procedures a standardised and rigorous approach to testing is required 		

Outcome 2: Record the results of tests

	Candidate's signature	Date
<p>Practical activities The candidate will be able to:</p> <ol style="list-style-type: none"> 1. use a test plan to carry out a series of tests 2. record the test results in a test log 3. provide evidence of testing eg printed output, screen shots, file output 		
<p>Underpinning knowledge The candidate will be able to:</p> <ol style="list-style-type: none"> 1. list the essential features of a test log (Appendix B) <ul style="list-style-type: none"> • test number • date • actual results • record of discrepancies between actual results and expected results 2. state that the test number must provide a cross reference between a test plan its corresponding test log and test output (printed, screen shots or file) 3. describe the importance of testing software in the target environment 		

Outcome 3: Analyse test results

	Candidate's signature	Date
<p>Practical activities The candidate will be able to:</p> <ol style="list-style-type: none"> 1. use the test log to produce a report which: <ul style="list-style-type: none"> • specifies the presence or absence of errors • makes proposals for rectifying errors • reports on the success of the test against the original software specification. 		
<p>Underpinning knowledge The candidate will be able to:</p> <ol style="list-style-type: none"> 1. describe the different types of software error <ul style="list-style-type: none"> • syntax • logical • run-time • non compliance with specification 2. describe common causes of run-time errors eg forever loops, illegal file operations, divide by zero 3. describe the difference between testing and debugging 4. describe the purpose of test plans, test logs, test results and test reports in relation to technical documentation 5. describe the relevance of testing in relation to software quality and maintenance 6. describe how well thought out test plans and test data can be reused for subsequent testing after errors are resolved or maintenance amendments made 7. describe the purpose of version control procedures when developing, testing, amending and maintaining software and documentation with reference to quality assurance 		

Outcome 4: Identify Health and Safety requirements

	Candidate's signature	Date
<p>Practical activities The candidate will be able to:</p> <ol style="list-style-type: none"> 1. maintain a safe working environment for self and others 2. use safe working practices at all times 3. operate equipment according to suppliers, manufacturers and/or workplace requirements 4. use and maintain equipment, materials and accessories to a safe standard 5. use reporting procedures to report any hazards 		
<p>Underpinning knowledge The candidate will be able to:</p> <ol style="list-style-type: none"> 1. describe what elements and practices create a good working environment <ul style="list-style-type: none"> • frequent breaks away from the computer • correct positioning of screens/chairs/keyboards • adequate lighting and ventilation 2. identify the health and safety precautions to adopt when using a computer <ul style="list-style-type: none"> • ensuring that power cables are safely secured • ensuring that power points are not overloaded 3. identify injuries common in a bad working environment <ul style="list-style-type: none"> • repetitive strain injury • eye strain • bad posture 4. identify cleaning procedures related to IT equipment 5. explain the term 'ergonomics' 6. describe the main points of relevant legislation: Health and Safety at work Act 1974, electrical regulations, working with VDUs, COSHH regulations 7. explain the importance of keeping fire doors and exits clear and unblocked 8. describe the use of different types of fire extinguishers, in particular those suitable for use in the IT environment. 		

Appendix A

TEST PLAN

SYSTEM NAME: PROGRAM NAME: MODULE NAME:			VERSION NO: TESTER NAME:	PAGE NO:
Test No	Date	Purpose/Type Of Test	Input/Filename	Expected Output/Filename

Appendix B

TEST LOG

SYSTEM NAME: PROGRAM NAME: MODULE NAME:			VERSION NO: TESTER NAME:	PAGE NO:
Test No	Date	Actual Output/Filename	Comments on discrepancies	