

Unit Title: Creating a procedural computer program
OCR unit number: 6
Unit reference number: L/601/3167
Level: 2
Credit value: 7
Guided learning hours: 60

Evidence for this unit can only be achieved through actual work in a work environment. Simulation is not permissible for any competence based unit.

Unit aim

The aim of this unit is that learners will:

- Implement software using procedural programming
- Refine a procedural program to improve quality
- Test the operation of a procedural program

Learning Outcomes	Assessment Criteria	Knowledge, understanding and skills
<p>The Learner will:</p> <p>1 Implement software using procedural programming</p>	<p>The Learner can:</p> <p>1.1 Select, declare and initialise variable and data structure types and sizes to meet given requirements</p> <p>1.2 Implement control structures</p> <p>1.3 Declare file structures</p> <p>1.4 Use standard input/output commands</p> <p>1.5 Use operators and predefined functions</p> <p>1.6 Correctly use parameter passing mechanisms</p>	<ul style="list-style-type: none"> • the main characteristics of software components: <ul style="list-style-type: none"> - data structure - input - output - process • the function of variable types such as: <ul style="list-style-type: none"> - local - global • how to define data structures for each variable such as: <ul style="list-style-type: none"> - arrays - lists - queues - stacks • how to select, declare and initialise variable and data structure types and sizes to meet given requirements • the role of control structures and how to implement them • how to declare file structures

Learning Outcomes	Assessment Criteria	Knowledge, understanding and skills
		<ul style="list-style-type: none"> • how to use a range of standard input/output commands • a range of operators and pre-defined functions • the different methods used for parameter passing and use them correctly e.g.: <ul style="list-style-type: none"> - call/pass by value - call/pass by reference
<p>2 Refine a procedural program to improve quality</p>	<p>2.1 Follow an agreed standard for naming, comments and code layout</p> <p>2.2 Implement data validation for inputs</p> <p>2.3 Implement error handling and reporting</p> <p>2.4 Create documentation to assist the users of a computer program</p>	<ul style="list-style-type: none"> • naming conventions used within programming and be able to explain the key features • the purpose of comments in programming and how to implement them • the appropriate layout for programme code and be able to explain why good layout is important • a range of data validation methods for inputs • what mechanisms are available for error handling and reporting and be able to implement them • how to create user documentation appropriate which will aid a variety of users
<p>3 Test the operation of a procedural program</p>	<p>3.1 Use available debugging tools</p> <p>3.2 Determine expected test results from given test data</p> <p>3.3 Compare actual test results against expected results to identify discrepancies</p>	<ul style="list-style-type: none"> • how to identify appropriate debugging tools and understand how they are used • how to develop appropriate test plans which will fully test the functionality of the program • identify the following: <ul style="list-style-type: none"> - a range of valid tests - the test data to use - the expected results from the test data • how to compare the actual test results with the expected results and: <ul style="list-style-type: none"> - identify discrepancies - identify how to rectify the problem

Assessment

It is the assessor's role to satisfy themselves that evidence is available for all performance, knowledge and evidence requirements before they can decide that a candidate has finished a unit. Where performance and knowledge requirements allow evidence to be generated by other methods, for example by questioning the candidate, assessors must be satisfied that the candidate will be competent under these conditions or in these types of situations in the workplace in the future. Evidence of questions must include a written account of the question and the candidate's response. Observations and/or witness testimonies must be detailed and put the evidence into context i.e. the purpose of the work etc.

In addition to the recognition of other qualifications, candidates may claim accreditation of prior achievement for any of the elements assessment criteria or complete units of competence, as long as the evidence fully meets the criteria and the candidate can prove that it is all their own work. It is important also that assessors are convinced that the competence claimed is still current. If the assessors have some doubts, they should take steps to assess the candidate's competence directly. An initial assessment of candidates is recommended.

All the learning outcomes and assessment criteria must be clearly evidenced in the submitted work, which is externally moderated by OCR.

Results will be Pass or Fail.

Guidance on assessment

Evidence can reflect how the candidate carried out the process or it can be the product of a candidate's work or a product relating to the candidate's competence.

For example: The process that the candidate carries out could be recorded in a detailed personal statement or witness testimony. It is the assessor's responsibility to make sure that the evidence a candidate submits for assessment meets the requirements of the unit.

Questioning the candidate is normally an ongoing part of the assessment process, and is necessary to:

- test a candidate's knowledge of facts and procedures
- check if a candidate understands principles and theories *and*
- collect information on the type and purpose of the processes a candidate has gone through
- candidate responses must be recorded

It is difficult to give a detailed answer to how much evidence is required as it depends on the type of evidence collected and the judgement of assessors. The main principles, however, are as follows: for a candidate to be judged competent in a unit, the evidence presented must satisfy:

- all the items listed, in the section 'Learning Outcomes'
- all the areas in the section 'Assessment Criteria'

The quality and breadth of evidence provided should determine whether an assessor is confident that a candidate is competent or not. Assessors must be convinced that candidates working on their own can work independently to the required standard.

Additional information

For further information regarding administration for this qualification, please refer to the OCR document '*Admin Guide: Vocational Qualifications*' on the OCR website www.ocr.org.uk .