

<b>Unit Title:</b>	<b>Introduction to IT systems development</b>
OCR unit number:	34
Unit reference number	J/601/3247
Level:	2
Credit value:	6
Guided learning hours:	50

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

This unit introduces the Systems Development Life Cycle and the roles involved in ICT system development.

Learning Outcomes	Assessment Criteria	Knowledge, understanding and skills
<p><b>The Learner will:</b></p> <p>1 Understand IT Systems and the roles of IT personnel</p>	<p><b>The Learner can:</b></p> <p>1.1 Explain the role of IT Systems in society</p> <p>1.2 Describe the major components of a contemporary IT System</p> <p>1.3 Describe the roles of personnel in the development, operation and use of IT System</p>	<ul style="list-style-type: none"> <li>• the roles of IT systems including: <ul style="list-style-type: none"> <li>- communication services</li> <li>- sharing, exchanging and managing information</li> <li>- the use of the internet</li> <li>- monitoring and tracking systems</li> </ul> </li> <li>• the major components of an IT system including: <p><b>Hardware:</b></p> <ul style="list-style-type: none"> <li>- Central Processing Unit (C.P.U.), internal/main</li> <li>- memory</li> <li>- backing storage</li> <li>- input and output devices</li> <li>- power supplies</li> <li>- servers</li> <li>- communication devices</li> </ul> <p><b>Software</b></p> <ul style="list-style-type: none"> <li>- generic applications</li> <li>- communication</li> <li>- programming software</li> <li>- systems software</li> <li>- specific software (e.g. MIS, expert system)</li> </ul> </li> </ul>

Learning Outcomes	Assessment Criteria	Knowledge, understanding and skills
		<ul style="list-style-type: none"> <li>• the roles of personnel including:               <ul style="list-style-type: none"> <li>- project manager</li> <li>- systems analyst and designer</li> <li>- programmer</li> <li>- tester</li> <li>- network managers</li> <li>- technicians</li> <li>- end-users</li> </ul> </li> </ul>
<p>2 Understand IT Systems Development Life Cycle (SDLC) models</p>	<p>2.1 Describe top down, bottom up and integrated approaches to IT Systems development</p> <p>2.2 Explain the purposes of the initiation, analysis, design and implementation phases of the IT SDLC</p> <p>2.3 Identify the advantages and disadvantages of the traditional ('waterfall') SDLC model</p> <p>2.4 Describe two other SDLC models, identifying the type of development for which they are suited</p>	<ul style="list-style-type: none"> <li>• the differing approaches that can be used during the development of an IT system:               <ul style="list-style-type: none"> <li>- the top down approach requires an overview of the system being constructed first</li> <li>- the bottom up approach requires the component parts being created initially prior to constructing the final system</li> <li>- the integrated approach attempts to combine these approaches</li> </ul> </li> <li>• the increased use of pre-written components and their use in the integrated approach:               <ul style="list-style-type: none"> <li>- the tasks that must be carried out during each identified phase of the SDLC and the iteration that occurs between each phase</li> <li>- the tools and techniques that can be used within each identified phase</li> <li>- the purpose should be explained, including:                   <ul style="list-style-type: none"> <li>○ inputs to phase</li> <li>○ tasks to be carried out</li> <li>○ tools and techniques used</li> <li>○ output from phase</li> </ul> </li> </ul> </li> </ul>

Learning Outcomes	Assessment Criteria	Knowledge, understanding and skills
		<ul style="list-style-type: none"> <li>• how to identify the advantages and disadvantages of the traditional SDLC model. These may also be applied to the type of system that is being developed using this SDLC: <ul style="list-style-type: none"> <li>- the advantages of the traditional SDLC model include: <ul style="list-style-type: none"> <li>○ a structured approach</li> <li>○ pre-defined tasks to be completed at each stage</li> <li>○ defined inputs and outputs for each stage</li> </ul> </li> <li>- the disadvantages of the traditional SDLC model include: <ul style="list-style-type: none"> <li>○ the client requirements may not be fully known at the start of the process</li> <li>○ inflexible approach to SDLC</li> </ul> </li> </ul> </li> <li>• candidates should be aware that each type of SDLC has been developed from the traditional SDLC to meet the needs of the increased range of systems that are available and being used</li> <li>• two other SLDC models, for example: <ul style="list-style-type: none"> <li>- Rapid Application Development (RAD)</li> <li>- Spiral</li> <li>- Joint Application Development (JAD)</li> <li>- Prototyping</li> <li>- how to identify, for each SDLC model that they have described, the type of development for which they are most appropriate</li> </ul> </li> </ul>

Learning Outcomes	Assessment Criteria	Knowledge, understanding and skills
<p>3 Understand IT Systems Development Life Cycle (SDLC) concepts and processes</p>	<p>3.1 Describe the advantages and disadvantages of the following solution types:</p> <ul style="list-style-type: none"> <li>• packaged ('off the shelf')</li> <li>• bespoke</li> <li>• combination of packaged and bespoke</li> <li>• upgrade</li> </ul> <p>3.2 Explain the importance of quality assurance and meeting customer requirements during the IT SDLC and the means by which they can be achieved</p> <p>3.3 Describe the applicability of the following methods of gathering information:</p> <ul style="list-style-type: none"> <li>• Interviews</li> <li>• observations</li> <li>• questionnaires</li> <li>• examination of records and documents</li> </ul>	<ul style="list-style-type: none"> <li>• the differing types of software solutions that could be used during the SDLC</li> <li>• the appropriateness of the use of each solution type</li> <li>• the described advantages and disadvantages of each solution type should include: <ul style="list-style-type: none"> <li>- cost</li> <li>- support</li> <li>- availability</li> <li>- choice (e.g. vendor)</li> <li>- upgrade options</li> <li>- memory footprint</li> <li>- testing</li> </ul> </li> <li>• the differing methods that can be used for Quality Assurance and ensuring that customer requirements are met. These methods should include: <ul style="list-style-type: none"> <li>- meetings</li> <li>- user focus groups and feedback</li> <li>- testing – including beta</li> <li>- referral to documentation</li> </ul> </li> <li>• the importance of this process should be understood, and explained, by the candidate including: <ul style="list-style-type: none"> <li>- the potential for the final system to not meet the client requirements</li> <li>- financial and time issues</li> <li>- resource issues including development staff, training</li> </ul> </li> <li>• the differing approaches that can be used to gather information</li> <li>• the advantages and disadvantages of each method and, in which situation each method could be used and should include: <ul style="list-style-type: none"> <li>• time issues</li> <li>• cost implications</li> <li>• response rates</li> <li>• accuracy and reliability of results gathered</li> <li>• flexibility of method</li> </ul> </li> </ul>

## Assessment

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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

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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

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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](http://www.ocr.org.uk).