Unit 8: Managing ICT Projects

A2 compulsory unit

Internally assessed

Introduction

You already have considerable experience of planning and carrying out small-scale projects. You know how difficult it can be to juggle resources and make effective use of time. Imagine how much more difficult it is when the project you are managing involves large numbers of people, lots of resources and substantial amounts of money! Determining what has to be done when and by whom, keeping track of progress and reporting to senior management requires considerable expertise. Perhaps not surprisingly, a large number of projects — particularly in ICT — do not fully meet their objectives. Some fail spectacularly!

It is now widely recognised that specialist knowledge and skills are required to manage projects successfully. This unit will introduce you to some formal project management tools and methods and give you an opportunity to use specialist software to plan and monitor projects.

You will be able to put into practice what you have learnt by setting up and running a small-scale software project. You will have to draw upon the knowledge and skills you have learned throughout the course in order to plan for and produce the required software product. It is assumed that you already have skills in at least two different software applications and some experience of the processes involved in software design and implementation.

Although in real life - budgeting is an important factor in any project, you will not be expected to consider finance. However, you will need to identify other resource requirements such as expertise, equipment and time. This is not a team activity, but will involve working closely with others, since people skills and good communication are key to successful project management.

The summative evaluation of your work for this unit will take the form of an end-of-project review at which you and other project stakeholders will assess the success of the project and your performance as the project manager.

This is a user-focused unit. The knowledge and skills developed in this unit are particularly relevant to those who use ICT on a daily basis at work or at school/college for personal, social and work-related purposes.

Recommended prior learning

This unit builds on the work you have done throughout the course. It assumes that you already have some experience of developing a software product, possibly though your work on Unit 7: Using Database Software.
8.1 Examples of projects

As you know from your own experience, a project is not a never-ending process. It runs for a pre-determined period of time, involves a number of people and is intended to achieve a specific goal. A number of factors contribute to the success of a project including detailed planning, efficient use of resources and effective communication.

You will find it useful to begin your work for this unit by studying some real-world examples of projects, both large and small. In particular, you should try to identify:

- the characteristics they have in common
- critical success factors
- reasons why some projects fail.

8.2 Stakeholders

In the course of your research, you will discover that even small projects have a surprisingly large number of people associated with them. These are known collectively as stakeholders. A stakeholder is an individual or organisation actively involved in the project or whose interests may be affected by it.

You must understand the roles and responsibilities of the following stakeholders:

- senior management
- customer/client
- user
- project manager
- team member
- peer reviewer
- supplier.

8.3 Project proposal

The starting point for any project is either a problem that needs solving or a bright idea! Someone identifies a need or an opportunity that may be worth pursuing.

You will learn how to carry out a thorough investigation of an initial project idea and produce a project proposal detailing:

- what the project is about
- what it will deliver
- what benefits it will bring and any potential risks
- impact on personnel and practices
- the functional requirements
- who will use the product(s)/service(s) that are produced
- how long it will take
- when it must be finished
- what resources will be needed
- who else will be involved
- ways of tackling the project including recommendations.
Getting senior management approval is not a foregone conclusion. Project managers need to be good communicators, able to impart complex information in a jargon-free way, willing to compromise if necessary but also confident and determined enough to hold out for what they really believe is important.

A project proposal can be presented on paper, electronically or verbally or any combination of these. You will learn how to conduct yourself appropriately in formal meetings and communicate complex technical information to a non-specialist audience.

8.4 Definition of scope

Once a project is given approval to proceed, it is important that everyone involved knows exactly what it is meant to achieve, by when and how. In other words, it must be formally defined and signed off. Whereas the project proposal consists of initial ideas, the project definition sets out the details (scope) of the project and provides a yardstick against which to judge the performance of the project.

You will learn how to produce a project definition that includes:

- the reason for undertaking the project
- the expected benefits to the organisation
- the objectives of the project
- key success criteria
- the constraints
- areas of risk
- the project roadmap ie a rough estimate of what will be delivered when
- resource requirements ie people, materials, equipment and time
- the project’s stakeholders
- interim review points.

Clear objectives are crucial, since a project's success will be judged by how closely it meets them.

You will learn how to define specific, measurable objectives, covering:

- the project deliverables, ie the product(s)/service(s) to be produced
- the quality criteria that the deliverables must meet
- the target completion date.

8.5 Project organisation

Since a project will involve other people, it is essential that the ground rules for communication and reporting are established at the outset.

You will learn how to set up and use procedures for:

- storing documents relating to a project (project folder)
- protecting information from accidental damage
- communicating with stakeholders
- reporting on progress
- holding reviews.
8.6 Phases of a project

Detailed planning is critical to the success of any project. A project manager needs to be able to analyse the requirements and to draw up a project plan.

You are already familiar with the sequence of activities involved in designing and producing software products such as relational databases and complex spreadsheet models. You will draw on this knowledge to help you divide up projects into phases, such as:

- analysis
- initial design
- prototyping and formative testing
- summative testing
- documentation
- hand-over to customer.

You will learn how to break down each phase into a number of activities, estimate how much time will be needed for each and identify any dependencies between activities.

8.7 Project planning

A good plan should be easy to read and maintain. You will use project management software to help you produce detailed project plans, showing:

- the phases of the project
- the activities to be carried out in each phase
- start date and end date of each activity
- dependencies
- resources required for each activity
- dates of key milestones
- potential risks, their affect on the plan and how their impact can be minimised.

You will use charting facilities provided by the software to produce graphical representations of plans, such as:

- Gantt charts
- PERT charts.

Far from being fixed in time, the project plan is a dynamic document. It is likely to change many times during the course of a project. You will learn the importance of checking progress against your plan at regular intervals and of modifying and updating the plan so that it is always current and gives an accurate picture of what work has been completed, what still needs to be done and what problems or potential problems — if any — need to be addressed.

The plan provides a snapshot of the project at a particular point in time. Anyone looking at it should see at a glance the current state of the project. A complete project history can be built up overtime by capturing and storing copies of the plan at key points in the project (known as base lining).

You will learn the importance of base lining project plans at regular intervals to create a detailed project history.
8.8 Project execution

Once the initial plan has been drawn up and approved, the execution of the project in accordance with the plan can get underway.

You will learn how to use techniques for measuring progress against plan and spotting potential problems. Even the best made plans can go awry! You need to be aware of what can go wrong in a project, such as a change to user requirements, a missing piece of equipment, illness or simply that the project is too ambitious.

A delay in completing one part of the plan is likely to have knock-on effects elsewhere. You will learn how to assess the impact of a hold-up and take appropriate corrective action — if possible - to get the project back on target. You must decide how much deviation from the plan is acceptable before you inform senior management that there is a problem.

8.9 Deliverables

The output of a project is a set of deliverables, not all of which are necessarily delivered at the end.

You will need to be able to identify project deliverables, such as:

- software products
- documentation
- user training

and produce a schedule for what will be delivered when and to whom.

8.10 Reviews

One way of checking that a project is on course and likely to succeed is to get someone who has no day-to-day involvement with it to carry out an independent review. Reviewers feed back to the project manager and to senior management.

You will learn how to identify suitable people and persuade them to act as reviewers for your projects and to make full use of their knowledge and expertise.

Formal management reviews also take place from time to time throughout the lifecycle of a project. Dates for these are usually agreed at the outset and listed in the project definition. You should never forget that senior management have the power to order work on a project to cease or change direction at any time. You will learn to prepare and present information at a formal management review.

8.11 Close down and end of project review

Sometimes projects simply refuse to come to an end. This is usually down to poor planning. The plan should specify dates for formal close down and end-of-project review, giving all those involved the opportunity to air their views about the strengths and weaknesses of the project and to formulate a list of lessons learnt. The project definition should be used as a yardstick to measure achievement.

You will learn how to set up and run an end-of-project review meeting, encourage attendees to voice their opinions, take accurate notes of the discussion and produce a written summary of the main points.

You should use this opportunity to gather information about your own performance and identify further development needs.
8.12 ICT skills

In order to manage projects efficiently you should be able to use ICT to:

- produce and maintain a project plan
- create and manage a shared work area
- present information to stakeholders.

8.13 Standard ways of working

Whilst working on this unit, you will be expected to use ICT efficiently, legally and safely. You must adhere to standard ways of working, including:

- file management
  - saving work regularly
  - using sensible filenames
  - setting up directory/folder structures to organise files
  - making backups
  - choosing appropriate file formats
  - limiting access to confidential or sensitive files
  - using effective virus protection
  - using ‘readme’ files where appropriate to provide technical information, eg system requirements
- personal effectiveness
  - selecting appropriate ICT tools and techniques
  - customising settings
  - creating and using shortcuts
  - using available sources of help
  - using a plan to help you organise your work and meet deadlines
- quality assurance
  - using spell check, grammar check and print preview
  - proofreading
  - seeking views of others
  - authenticating work
- legislation and codes of practice
  - acknowledging sources
  - respecting copyright
  - avoiding plagiarism
  - protecting confidentiality
- safe working
  - ensuring that hardware, cables, seating etc are positioned correctly
  - ensuring that lighting is appropriate
  - taking regular breaks
  - handling and storing media correctly
• eportfolio
  – creating an appropriate structure for an eportfolio
  – collecting together all the required information, converting files to an appropriate format if necessary
  – authenticating your work
  – providing a table of contents, using hyperlinks to locate information easily
  – testing for size, compatibility and ease of use, making sure that the eportfolio conforms to the technical specification.

Assessment evidence

For this unit you will:
• research and produce a proposal for a new software product, present your proposal to senior management and draw up a project definition that defines the scope of the project once this has been agreed (Assessment evidence a)
• produce a detailed project plan and use it to monitor and communicate progress throughout the project (Assessment evidence b)
• keep detailed records showing how you managed the project (Assessment evidence c)
• design and produce the software product and other deliverables specified in the project definition in accordance with the project plan (Assessment evidence d)
• evaluate the project and your own performance, incorporating feedback from the end-of-project review (Assessment evidence e).

Your eportfolio for this unit should include:
(a) A project proposal, with evidence of how you presented it to senior management, and a project definition document that has been approved by senior management.
(b) A project plan covering all the key phases of the project. Plus evidence of your use of the plan to monitor and communicate progress throughout the project.
(c) Evidence of your performance as a project manager, showing how you communicated with stake holders, acted upon feedback, provided accurate information and ran meetings.
(d) The software product – plus any other specified deliverables - that you produce as outcomes of the project. Plus evidence showing how the production of the product correlated with the schedule specified in the plan.
(e) An evaluation – using feedback from the end-of-project review – assessing the success of the project, the effectiveness of the project management methods you used and your own performance.
<table>
<thead>
<tr>
<th>Mark Band 1</th>
<th>Mark Band 2</th>
<th>Mark Band 3</th>
<th>Mark awarded</th>
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</table>
| An outline project proposal that:  
- provides some information, but not sufficient on its own for senior management to make an informed decision  
- shows limited awareness of audience and purpose.  
Plus, a project definition document that defines the scope of the project.  

(0 – 3) | A well-researched, detailed project proposal that:  
- provides sufficient information for senior management to make an informed decision  
- considers the impact of the proposal on others  
- is clearly communicated, demonstrating sound awareness of audience and purpose.  
Plus, a project definition document that fully defines the scope of the project.  

(4 – 5) | A well-researched, comprehensive project proposal that:  
- provides all the information needed for senior management to make an informed decision  
- carefully considers the impact of the proposal on others  
- is well-argued and clearly communicated, demonstrating sound awareness of audience and purpose.  
Plus a project definition document that fully defines the scope of the project and identifies clear and measurable objectives.  

(6) | 6 |
Assessment criteria — Unit 8: Managing ICT Projects (continued)

<table>
<thead>
<tr>
<th>(b)</th>
<th>Mark Band 1</th>
<th>Mark Band 2</th>
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<tbody>
<tr>
<td></td>
<td>An outline project plan — produced at the start of the project — that:</td>
<td>A detailed project plan — produced at the start of the project — that:</td>
<td>A comprehensive project plan — produced at the start of the project — that:</td>
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<td></td>
<td>- divides the project into a number of phases, though these may not be entirely logical</td>
<td>- divides the project into a number of logical phases</td>
<td>- divides the project into a number of logical phases</td>
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<td></td>
<td>- identifies some of the main activities to be carried out in each phase</td>
<td>- identifies most of the main activities to be carried out during each phase</td>
<td>- identifies all of the main activities to be carried out during each phase</td>
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<td></td>
<td>- allocates time and resources to each activity, although these may not be entirely realistic</td>
<td>- allocates a realistic amount of time and resources to most activities</td>
<td>- allocates a realistic amount of time and resources to every activity, taking account of dependencies between them</td>
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<td></td>
<td>- identifies some potential risks.</td>
<td>- identifies and assesses some potential risks</td>
<td>- identifies and accurately assesses potential risks</td>
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<td></td>
<td>Evidence that some limited use was made of the plan to monitor and communicate progress.</td>
<td>Evidence that the plan was used throughout the project to monitor and communicate progress.</td>
<td>Evidence that the plan was used effectively throughout the project to monitor and communicate progress and identify potential problems and that contingency measures were taken when necessary to keep the project on track.</td>
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<td></td>
<td>(0 — 6)</td>
<td>(7 — 9)</td>
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Assessment criteria — Unit 8: Managing ICT Projects (continued)

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<th>Mark Band 2</th>
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<td>During the project, the learner:</td>
<td>During the project, the learner:</td>
<td>During the project, the learner:</td>
<td>20</td>
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<tr>
<td>• communicates with stakeholders — both formally and informally — but needs</td>
<td>• communicates appropriately with stakeholders — both formally and</td>
<td>• communicates effectively with stakeholders — both formally and</td>
<td></td>
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<tr>
<td>frequent prompting</td>
<td>informally — making some use of feedback received</td>
<td>informally — making good use of feedback received</td>
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<tr>
<td>• provides some accurate information, but only on request</td>
<td>• provides accurate, information, with only occasional prompting</td>
<td>• provides accurate, detailed and up-to-date information, without needing</td>
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<td>• needs support to organise, run and record the outcomes of formal project</td>
<td>• independently organises, runs and records the outcomes of formal project</td>
<td>to be prompted</td>
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<td>meetings.</td>
<td>meetings.</td>
<td>meetings confidently and professionally</td>
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<td>• actively drives the project forward, adopting a proactive approach to</td>
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<td>project management, anticipating problems and taking appropriate</td>
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<td>corrective action when necessary.</td>
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<td>(11 — 15)</td>
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Assessment criteria — Unit 8: Managing ICT Projects (continued)

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<th>Mark Band 1</th>
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<tbody>
<tr>
<td>(d) (AO 1, 3)</td>
<td>A software product produced in accordance with the project plan that meets some of the objectives specified in the project definition, with some deliverables meeting the agreed quality criteria.</td>
<td>A software product produced in accordance with the project plan that meets most of the objectives specified in the project definition and is delivered on time, with most deliverables meeting the agreed quality criteria. Throughout the development of the product there is some correlation between what the plan indicates should be happening and what is actually happening.</td>
<td>A software product produced in accordance with the project plan that meets all of the objectives specified in the project definition and is delivered on time, with all deliverables meeting the agreed quality criteria. Throughout the development of the product there is a close correlation between what the plan indicates should be happening and what is actually happening.</td>
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### Assessment criteria — Unit 8: Managing ICT Projects (continued)

<table>
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<tr>
<th>(e) (AO 4)</th>
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<td></td>
<td>An evaluation — taking account of feedback from the end-of-project review meeting — commenting on:</td>
<td>An evaluation — using feedback from the end-of-project review meeting — assessing:</td>
<td>A critical evaluation — making extensive use of feedback from the end-of-project review meeting — analysing:</td>
<td>12</td>
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<tr>
<td></td>
<td>- the success of the project</td>
<td>- the success of the project</td>
<td>- the success of the project, measured against the objectives specified in the project definition document</td>
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<td></td>
<td>- the effectiveness of the project management methods used</td>
<td>- the effectiveness of the project management methods used, identifying key lessons learnt</td>
<td>- the effectiveness of the project management methods used, exploring key lessons learnt and justifying actions taken/decision made</td>
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<td></td>
<td>- their own performance as a project manager.</td>
<td>- strengths and weaknesses of their own performance as a project manager..</td>
<td>- strengths and weaknesses of their own performance as a project manager, identifying areas for improvement.</td>
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(0 — 6) (7 — 9) (10 — 12) 12

Total marks 60

(For description of AOs see page 247)
Assessment guidance

Assessment evidence (a)

**Mark Band 1**
(0 — 3 marks)

To be eligible for Mark Band 1, learners must have produced an outline project proposal providing some of the required information *(What you need to learn* section 8.3) and an approved project definition document. However, the proposal will not provide sufficient information to enable senior management to make a decision.

For full marks in this band, learners must have shown some awareness of the audience for, and purpose of, the project proposal.

**Mark Band 2**
(4 — 5 marks)

To be eligible for Mark Band 2, learners must have produced a detailed project proposal which has been well-researched and provides enough information for senior management to make an informed decision. Subsequently, they must have drawn up a project definition document that accurately reflects this decision.

For full marks in this band, learners must have considered the likely impact of their proposal on others and have demonstrated a sound awareness of audience and purpose for both the proposal and the project definition document.

**Mark Band 3**
(6 marks)

To be eligible for Mark Band 3, learners must have produced a well-researched, comprehensive project proposal that gives careful consideration to the impact of their proposal on others.

The proposal provides all the information needed by senior management to make an informed decision. Learners will have communicated their proposal clearly, arguing their case if necessary. Their project definition document will contain a set of clear and measurable objectives.

Assessment evidence (b)

**Mark Band 1**
(0 — 6 marks)

To be eligible for Mark Band 1, learners must have produced the plan before starting work on the project! They must have made some attempt to divide the project into phases and identify some of the main activities that will take place in each phase.

For full marks in this band, the learner must have allocated time and resources to each activity, although these may not always be realistic, and have identified some (at least two) potential risks.

They must also have updated the plan from time to time during the course of the project, though not often enough to ensure that it accurately reflects the current state of the project at all times.

**Mark Band 2**
(7 — 9 marks)

To be eligible for Mark Band 2, learners must have produced a detailed plan up front, dividing the project into logical phases, identifying most of the main activities associated with each phase and allocating realistic amounts of time and resources to each activity and identifying some potential risks.

They must also have updated the plan regularly throughout the project and made some use of it to monitor and communicate progress.

For full marks in this band, learners must have identified and assessed some potential risks, categorising them according to their likelihood/impact. They must have updated the plan regularly throughout the project and used graphical representation to show progress to plan.
Mark Band 3  
(10 — 12 marks)
To be eligible for Mark Band 3, learners must have produced a comprehensive plan, dividing the project into logical phases, identifying all of the main activities associated with each phase and allocating realistic amounts of time and resources to each activity — taking account of dependencies between tasks — and have identified and assessed risks, categorising them realistically according to their likelihood/impact.

They must also have updated the plan frequently throughout the project, so that it always conveyed an accurate picture of progress to plan, using graphical representation effectively to communicate this.

For full marks in this band, learners must have used the plan effectively throughout the project to communicate progress and identify potential problems, taking contingency measures when necessary to keep the project on track.

Assessment evidence (c)
Mark Band 1  
(0 — 10 marks)
To eligible for Mark Band 1, learners must have made some attempt to manage the project, though they will have needed considerable ‘hand-holding’ They must have set up a project folder, organised and run one formal meeting — keeping a record of the outcomes — and produced one progress report.

For full marks in this band, learners must have communicated with stakeholders — formally and informally — at intervals throughout the project and organised and run different types of review meetings eg peer, formal management, end-of-project.

Mark Band 2  
(11 — 15 marks)
To eligible for Mark Band 2, learners must have managed the project with very little prompting. They will have set up and maintained a project folder, organised and run various review meetings — keeping accurate records of the outcomes — and produced regular progress reports.

For full marks in this band, learners must have demonstrated that they made constructive use of the feedback they received from others, taking corrective action where appropriate.

Mark Band 3  
(16 — 20 marks)
To eligible for Mark Band 3, learners must have taken ownership of the project, communicating effectively with stakeholders, maintaining detailed records, holding meetings, providing accurate and up-to-date information and making good use of feedback.

For full marks in this band, learners must have adopted a proactive approach to project management, using project processes and methodology to good effect to drive the project forward and produce the required results. They will have managed the project confidently and professionally.

Assessment evidence (d)
Mark Band 1  
(0 — 5 marks)
To be eligible for Mark Band 1, learners must have produced a software product in accordance with the project plan which meets some of the objectives specified in the project definition. The emphasis here is on working to the plan. A product that meets the objectives but was not developed in line with the sequence/timings of phases and activities specified in the project plan should not be awarded any marks.

For full marks in this band, the product must meet most of the objectives, with some of the deliverables produced meeting agreed quality criteria.
Mark Band 2  
(6 – 8 marks)  
To be eligible for Mark Band 2, learners must have produced a software product in accordance with the project plan that meets most of the objectives and is delivered on time, with most of the deliverables meeting agreed quality criteria.

For full marks in this band, there must be some correlation throughout the development of the product between what the plan says should be happening and what is actually happening.

Mark Band 3  
(9 – 10 marks)  
To be eligible for Mark Band 3, learners must have produced a software product in accordance with the project plan that meets all the objectives specified in the project definition and is delivered on time, with all deliverables meeting agreed quality criteria.

For full marks in this band, there must be a close correlation throughout the development of the product between what the plan says should be happening and what is actually happening.

Assessment evidence (e)

Mark Band 1  
(0 – 6 marks)  
To be eligible for Mark Band 1, learners must have made some use of feedback from the end-of-project review meeting when commenting on the success of the project and their own performance as a project manager.

For full marks in this band, learners must have commented on the effectiveness of the project management methods they employed.

Mark Band 2  
(7 – 9 marks)  
To be eligible for Mark Band 2, learners must have made good use of feedback from the end-of-project review to inform their evaluation. They must have produced an accurate assessment of the success of the project, the effectiveness of the project management methods used and their own performance as a project manager.

For full marks in this band, learners must have identified key lessons learnt and assessed the strengths and weaknesses of their own performance.

Mark Band 3  
(10 – 12 marks)  
To be eligible for Mark Band 3, learners must have made extensive use of feedback from the end-of-project review to inform their evaluation. They must have analysed the success of the project (measuring it against the objectives specified in the project definition), the effectiveness of the project management methods employed and their own performance as a project manager (assessing strengths and weaknesses) and have explored key lessons learnt.

For full marks in this band, learners must have included some justification for their actions and decisions and have identified areas for self-improvement.
Delivering this unit

General information

Assessment requirements

The Assessment evidence section is addressed to the learners and gives precise details of what they must do.

The Assessment criteria grid, on the other hand, is addressed to the assessor and defines the quality of output required for each mark band. Whilst the requirements remain the same across the mark bands, performance is differentiated by the quality of the learner’s response, e.g. level of detail provided, quality of output, mastery of software tools, depth of analysis/evaluation.

The Assessment guidance section provides further information to help assessors determine which mark band a piece of work falls into and how to award marks within that band.

Balance of theory and practical work

All the marks available for this unit are for practical activities related to planning and managing a project using formal project management methods.

Learners will need to use project management software for this unit.

Vocational context

This unit has a user focus. Ideally, learners should experience a large-scale ICT project, possibly by sitting in on reviews, studying project documentation etc.

Standard ways of working

To be eligible for Mark Band 1, learners must work safely and adhere to relevant legislation and codes of practice. To be eligible for higher mark bands, learners must use standard ways of working to manage files, enhance personal effectiveness and quality assure their work.

Eportfolio

Learners will be expected to present their evidence for this unit in an eportfolio. The eportfolio must be constructed so that its contents can be accessed using 5th generation, or equivalent, web browsers, such as Microsoft Internet Explorer version 5 or Netscape Navigator version 5 and be in a format appropriate for viewing at a resolution of 1024 x 768 pixels.

Learners must be clear about the distinction between file formats appropriate for product creation and read-only file formats appropriate for viewing. Acceptable file formats for eportfolio content are likely to be PDF for paper-based publications, jpg or png for images, html for on-screen publications and swf (Flash movie) for presentations, but may be revised to take account of future developments.

A detailed technical specification for eportfolios for this qualification will be published on the Edexcel website.

The following evidence should appear in the eportfolio for this unit:

- the project proposal, plus evidence of how it was presented to senior management
- the project definition document
- the project plan, plus evidence of its use to monitor and communicate progress
- a collection of evidence of performance as a project manager, eg project reports, agendas, minutes witness testimonies
the software product, plus any other deliverables, plus evidence of how the production of the product correlated with the schedule

- an evaluation of the project and own performance.

**Teaching and learning strategies**

Teachers may wish to combine this unit with one of the ‘Using software’ units, eg *Unit 10: Using Multimedia Software, Unit 11: Using Spreadsheet Software or Unit 12: Customising Applications*. Learners will need to have had some experience of developing software prior to attempting to produce a detailed project plan.

Although this is not a team project, learners must involve other people to act as stakeholders: senior manager, reviewer, customer. Ideally they should work with ‘real’ stakeholders, but failing that they will need to have someone acting the part eg the teacher could act as the senior manager, a fellow learner as a reviewer and someone else role play the customer/user.

When researching their project proposal, learners should consider carefully the impact that the proposed software will have on others.

The projects learners undertake must address a genuine need or opportunity. Ideally, learners should find their own projects, but — failing that — teachers will need to devise a list of appropriate projects for learners to choose from. They should be complex enough to require at least 10 weeks to complete. Possible software projects could be:

- a bespoke software application such as a customer database, a stock control system or an invoicing and sales system, a sports league table
- a multimedia product such as an e-learning resource, an e-book or an eportfolio
- a website for an organisation.

Learners must set up and hold regular reviews throughout the project as well as a formal end-of-project review.

Teachers may wish to consider splitting groups into smaller ‘management’ groups of five to six learners for the purposes of formative review. Each learner has one management group to which they belong and to which they regularly report on project progress using the review dates built into the project plan at the outset. This will provide learners with opportunities to formally present ideas to a ‘management board’, to record minutes and to learn how to conduct themselves in a formal setting. This approach will also enable learners to receive peer support whilst maintaining a personal project.

The emphasis in this unit is very much on project management rather than software development, this is reflected in the way in which marks are allocated for Assessment evidence (d) — not for the software product itself, but for its production in accordance to the plan and project definition.
The concept of project planning is introduced in Unit 4: System Design and Installation. The project management skills and techniques that learners learn in this unit are generic. They can be transferred to work in other units.

The IT knowledge and skills covered in this unit map to NOS for Using IT, Areas of Competence:
- Make selective use of IT
- Operate a computer
- IT trouble-shooting for users
- IT security for users
- Specialist or bespoke software
- Evaluate the impact of IT.

The standards specify what users of IT working at Levels 1-3 are expected to know and understand and be able to do. They include examples of tasks that users operating at a specific level might be expected to perform. The ICT skills listed in What you need to learn section 8.12, and some of the standard ways of working listed in What you need to learn section 8.13, cover aspects of several NOS Areas of Competence (AOCs).

Learners will need access to:
- desktop/laptop computers ideally with the following minimum specification (based on Becta workstation specification 2/10/03):
  - 256MB memory
  - 1.7GHz Intel processor or equivalent
  - 40GB hard drive
  - video card with 32MB memory
  - CD/DVD
  - some form of rewritable media
  - UK keyboard and pointing device
  - colour, high resolution monitor, capable of supporting 1024x768
  - sound output (16 bit soundcard, output through speakers/headphones)
- printing facilities
- sufficient individual storage space
- internet access (broadband)
- Windows XP operating system or equivalent
- software
  - project management eg Microsoft Project
  - word processing eg Microsoft Word, OpenOffice Writer
  - presentation eg Microsoft PowerPoint, OpenOffice Impress.

**Books**


Young T L — *Implementing Projects* (The Industrial Society, 1993) ISBN 0 85290 879 2

**Websites**