Unit 24: Project Planning with IT

Unit code: Y/601/7321

QCF Level 3: BTEC Specialist

Credit value: 10

Guided learning hours: 60

Aim and purpose

The aim of this unit is to ensure learners understand the processes and tools used for project management and are able to plan a project, follow the plan and review the project management process.

Unit introduction

It is common to read about projects that over-run their deadline dates, cost more than the estimated cost or do not meet the needs of the clients or users. These problems often arise because of poor project management.

To successfully run a project and develop a product, system or service requires a complex integration of skills from across a wide field of expertise. The expertise required extends beyond the skills necessary to develop the product or service itself. It involves an understanding of the needs of the business and of such things as the associated systems and procedures, and job functions that need to be taken into account to ensure success.

This unit gives learners the opportunity to develop or extend skills such as analysis, synthesis, evaluation and independence. Substantial activity with this unit will be focused on a particular project, however, learners will also study general aspects of project management in order to develop transferable skills.

In this unit learners will be introduced to project planning and the methodologies and IT tools available to support it. Having gained an understanding of the process, learners will be able to identify a project from any area and apply project management skills to successfully develop and deliver a service or product. The project must be sufficiently complex to allow planning and management to take place. It must also allow learners the opportunity to manage some resources, in particular and at least, the time allocated for completion.

There are possibilities for combining this unit with complementary work in other units such as database design, multimedia or networking but it could also be used to manage activities from other study areas.

To further develop understanding, learners will review the whole project management process and evaluate the IT tools they used.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand how projects are managed	1.1 illustrate typical phases of a project lifecycle 1.2 explain the resources available to support the project manager 1.3 discuss issues affecting project management
2 Be able to plan projects using IT	2.1 produce a project specification 2.2 plan a defined project using IT
3 Be able to follow project plans	3.1 follow a project plan to carry out a defined project
4 Be able to review the project management process	4.1 carry out a review of the project management process

Unit content

1 Understand how projects are managed

Project life cycles: stages eg defining and producing specification, planning and designing, collecting information, implementing, completing and reviewing

Resources: information; people (expertise and responsibilities) eg project managers, product developers, programmers, systems analysts; equipment or facilities eg software, hardware; finance

Project management tools: general planning and scheduling tools eg Gantt charts, PERT charts; critical path methods; specialised software packages eg Microsoft Project

Project methodologies: examples eg Prince2, Sigma, company specific; benefits and drawbacks of formal methodologies

Project management issues: effects of changing external factors; monitoring progress; taking corrective actions where necessary; communications; working within relevant guidelines (internal and external) and legislation; dealing with conflict; impact of project outputs on other systems eg staff, organisational structures

2 Be able to plan projects using IT

Project specification: identification of stakeholders; business case requirements; specific objectives or deliverables; benefits and success factors; project boundaries or scope; constraints; consideration of options; other eg ethical issues, sustainable issues, understanding consequences of failure to hit deadlines or produce product; risks and risk mitigation

Project plan: purpose; content eg identification of phases and activities, potential for parallel or sequential processes, resources needed for each activity, timescales, review points eg milestones, checkpoints, deadlines; use of appropriate and available software eg project management packages, spreadsheets, drawing packages, graphics, databases

3 Be able to follow project plans

Monitoring: routine communications with stakeholders; interim reviews; use of logbooks; routine updating of plan where necessary; others eg accessing additional resources where necessary, reacting to unforeseen circumstances

Functional testing of product/service: test data eg normal, extreme; structured 'walk through'; test plan or schedule

4 Be able to review the project management process

Review: against specification; identification of potential additional development

Review of project management: actual dates achieved for milestones compared to planned dates with reasons for difference; actual use of resources compared with planned resources needed; others eg unanticipated external factors that affected the project; validity and effectiveness of the tools used

Essential guidance for tutors

Delivery

The following are ideas for the delivery of this unit. However, differing learner groups with differing abilities and interests will have considerable impact on the way the unit is delivered.

Delivery as outlined in the scheme below relies heavily on the use of case studies for the more theoretical aspects of the unit and tutor demonstrations for the more practical aspects. This too is down to the tutor's experience, resources and learners.

The unit only deals with project associated concepts, there is no provision for learners to develop skills in using software and developing products. It is assumed that they will have these skills before embarking on the project.

A good starting point could be a definition and description of a project specification, using case studies and example specifications to illustrate the various points as listed in the unit content. The use of staged role-play in a 'client' to 'IT professional' interview is a useful tool from which learners can take notes and attempt, in groups, to put together a draft specification from the information they have obtained.

Using diagrammatic representations of the life cycle is a good way of delivering this topic. Learners can build their own checklist of points associated with each phase of the life cycle, something which will help them later in their project work.

Project management tools have been divided into general planning and scheduling tools, critical path analysis and project management software. Tutors will demonstrate an example of each of these, followed by suitable learner exercises.

No project management unit can avoid looking at resources. The unit content breaks this into four prescriptive elements – information, people, equipment (facilities) and money. Some whole class teaching is essential when delivering this, but it can supplemented by the use of organisation charts to show people's expertise and responsibility, handouts with respect to money and information, and a little directed study on the internet for facilities.

Example project plans can be used to illustrate what a project plan is and what it contains. Learners can be given incomplete plans and in groups determine what is missing. Tutors will also introduce the software that is going to be used; this may be specialist software, or could be special application of more general software. Learners will need some practice exercises in using the software for project planning purposes.

Learners should have the skills needed to develop and implement the product or service, which may be being delivered in a complementary unit. However, if learners are undertaking a new project with a defined product outcome, the principles of design and implementation may need to be demonstrated. Methods will depend on the nature of the product or service being designed.

Monitoring is important and class discussions on what has to be monitored, with learners making check lists of the types of monitoring they may need, would be useful. The use of case studies to show where monitoring should take place is useful as are learner exercises in updating plans. Role-plays can be beneficial and can add light relief to a difficult concept.

Reviewing the project management process and evaluating project management tools is best delivered by looking at documentary evidence of existing project reviews. Learners could come up with a checklist of headings and items to include in their reviews.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments. The outline learning plan demonstrates one way in planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and/assessment
Introduction to the unit

Managing projects:
• whole-class exercise – tutor presentation on project life cycles. Tutor uses diagrams to identify phases of whatever life cycle system the centre is using
• individual exercise – learners build a key check list for each phase
• whole-class exercise – tutor presentation on project management tools, including:
  o tutor demonstration of planning and scheduling tools
  o learner examples using planning and scheduling tools
  o tutor demonstration of CPA
  o learner examples using CPA
  o tutor demonstration of project management software
  o learner examples using project management software
• whole-class exercise – tutor presentation on resources, including:
  o whole class teaching on information, people, equipment and money
  o use of organisation chart of people
  o handouts on money; directed study on equipment; gapped handouts or quizzes
• whole-class exercise – tutor presentation on project methodologies, including:
  o discussion on benefits and disadvantages of using a formal methodology
  o tutor demonstrates techniques used in the methodology the centre uses as standard
  o learners undertake exercises to practice various aspects of the methodology
• whole-class exercise – tutor presentation on other issues, including:
  o tutor uses case studies and examples to deliver to whole class
  o learners work on case studies to identify some of the other issues
  o gapped handouts or quizzes.

Topic and suggested assignments/activities and/assessment
Suggested Assignment 1 - Understanding the Basics
Planning projects: • whole-class exercise – tutor presentation on threats • group exercise – discuss in groups the potential threats to successful projects, feed back and create a composite list • group exercise – discuss in groups ways of minimising potential failure, feed back and create complex list • whole-class exercise – tutor presentation on project specifications, including case studies used by tutor for demonstration • individual exercise – learners practice looking at case studies and extracting relevant information • group exercise – role play between 'client' and 'IT professional' • group exercise – in groups learners build a specification • whole-class exercise – tutor presentation on project plans, tutor uses example project plans to demonstrate content • individual exercise – learners study example plans with parts missing and attempt to fill in the gaps • whole-class exercise – tutor presentation on the software that will be used, followed by simple exercises using the software • whole-class exercise – tutor uses one or more completed project plans to demonstrate the detail of activities • individual exercise – learners look at one or more project plans and identify the activity detail • individual exercise – learners given some appropriate planning information and attempt put details to the activities within.
Suggested Assignment 2 - Plotting and Planning
Design and implementation: • whole-class exercise – tutor presentation on deliverables, tutor uses case study material to illustrate what is meant • individual exercise – learners use case study material to identify deliverables • whole-class exercise – tutor presentation on monitoring • whole-class exercise – tutor-led discussions on what has to be monitored • individual exercise – learners look at case studies showing various aspects of monitoring • group exercise – role plays (eg communication with stakeholders, interim review) • individual exercise – learner exercises on updating plans.

Topic and suggested assignments/activities and/assessment
Suggested Assignment 3 - Implementation is the Name of the Game
Review project management: • whole-class exercise – tutor presentation on the review process • group exercise – small groups study and discuss examples of project reviews, feedback to the whole class • individual exercise – learners use case studies to understand the review process.
Suggested Assignment 4 - Review - It's Good for You!

Assessment

It is suggested that this unit is assessed using four assignments as summarised in the *Programme of suggested assignments* table.

Learners need to experience and provide evidence for the whole range of project management and development activities within this unit. To enable this to happen the project selected must be sufficiently substantial to allow coverage of every aspect of the criteria, whilst being sufficiently manageable to be completed in the time allocation. However, the project must be over a sufficiently long timescale to enable learners to hold regular meetings or have some form of regular communication with the project 'stakeholders'.

Learners will require guidance in selecting a suitable project. Any project of suitable complexity and size is acceptable. General software, multimedia, networking and system support can all provide suitable projects, as can work from other vocational areas or general activities such as planning an open day.

The emphasis is on the project planning process rather than on the product or service delivered. Therefore there is scope for delivery of this unit alongside others and outcomes required from other units may be 'managed' and implemented as part of this unit.

Suggested Assignment 1 – Understanding the Basics

Criteria 1.1, 1.2 and 1.3 are all relatively straightforward and the unit content will guide the evidence to be included. The life cycle may be shown diagrammatically as long as it is clear and each stage is explained. In considering the resources, learners should include all four main sections ie information, people, facilities and finance. The verb is 'explain' which requires more than a description. Learners will find it easier to explain if they think about why each resource is necessary. When discussing issues affecting project management, learners should refer to 'other issues' in the unit content and address at least three or four of the suggested issues.

Suggested Assignment 2 – Plotting and Planning

Learners must now identify a project. This may be work for a complementary unit or may be something completely new (tutor can supply ideas). The first requirement, for 2.1, is to produce a project specification. Remember this is a project specification not a product specification and will therefore differ from any product specifications learners may produce for other units. Attention should therefore be paid to the unit content above.

Learners should provide evidence, probably in the form of a report, covering each of the elements in the unit content. To gather the information they need they should be communicating with the 'stakeholders' and keeping records of their discussions.

Project planning documentation, for 2.2, should contain some form of time line with monitoring points, milestones etc and a critical path shown. Evidence should be generated by appropriate software and annotated as necessary.

Suggested Assignment 3 – Implementation is the Name of the Game

For 3.1, documentation may be on paper, electronic or a combination of the two. The nature of the evidence may vary but it should demonstrate that a product or service has been developed to meet the project specification. The 'product' may not be totally complete or 'working' but in that case reasons should be given. Remember the focus is on the planning rather than the product for this unit.

Suggested Assignment 4 – Review – It's Good for You!

The review, for 4.1, should consider the whole process and include: the good features of the planning process (where events and resource utilisation matched the original proposal and where it was fairly straightforward to stick to the plan); the less good features (where events or resource utilisation differed significantly from the plan and the plan had to be adapted); the unexpected and unpredictable events which affected the process; suggestions for how the learner could improve their project management in the future.

A written report is a suitable vehicle for delivering this evidence.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass criteria in the outcomes and assessment grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment methods
1.1-1.3	Understanding the Basics	Working for a project development company you are to become involved with a project for one of the clients. You are going to start by preparing an introduction to project management to demonstrate you understand the process.	Presentation. Information leaflet.
2.1, 2.2	Plotting and Planning	Now you are ready to proceed with gathering the information you need from the client in order to put together a project specification and produce project planning documentation.	Project specification (report). Planning documentation eg Gantt chart, critical path, review points etc.
3.1	Implementation is the Name of the Game	Now you are to implement your project, monitoring and reviewing as you go.	Logs of activities. Adjusted planning documents. Minutes of meetings etc.
4.1	Review – It's Good for You!	Your project is complete. Now review the planning process and the tools you used to help you.	Report.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC in IT sector suite. This unit has particular links with:

Level 1	Level 2	Level 3
	Project Planning using IT	

This unit maps to some of the underpinning knowledge from the following areas of competence in the Level 3 National Occupational Standards for IT (ProCom):

IT/Technology Infrastructure Design and Planning.

Essential resources

Access to specialist project management software.

Employer engagement and vocational context

Potential for many and varied engagement of employers across many disciplines.

Indicative reading for learners

Textbooks

Dawson C – *Projects in Computing and Information Systems: A Students Guide, 2nd edition* (Addison Wesley, 2009) ISBN-10 0273721313, ISBN-13 978-0273721314

Maylor H – *Project Management and MS Project CD, 4th edition* (FT Prentice Hall, 2010) ISBN-10 027370432X, ISBN-13 978-0273704324

Yeates D and Cadle J – *Project Management for Information Systems, 5th edition* (Prentice Hall, 2007) ISBN-10 0132068583, ISBN-13 978-0132068581

Websites

www.businessballs.com/project.htm

www.managementhelp.org/plan_dec/project/project.htm

www.prince2.com

Functional Skills – Level 2

Skill	When learners are …
ICT – Using ICT	
plan solutions to complex tasks by analysing the necessary stages	planning a project
select, interact with and use ICT systems safely and securely for a complex task in non-routine and unfamiliar contexts	planning a project using IT
ICT – Finding and selecting information	
select information from a variety of sources to meet requirements of a complex task	planning a project
ICT – Developing, presenting and communicating information	
combine and present information in ways that are fit for purpose and audience	demonstrating effective communication with stakeholders
evaluate the selection, use and effectiveness of ICT tools and facilities used to present information	evaluating the effectiveness of tools used to plan a project.