

## SQA Advanced Unit specification: general information

**Unit title:** Computing: Introduction to Project Management

**Unit code:** HP21 47

**Superclass:** CB

**Publication date:** August 2017

**Source:** Scottish Qualifications Authority

**Version:** 01

### Unit purpose

This unit will enable candidates to develop the basic knowledge and skills required to plan, implement, monitor, manage and report on a small scale project.

The unit is intended for candidates who are working or preparing to work in an environment where they would be expected to work as part of a project managed team in the public, private or voluntary sectors. This unit will aid the candidates understanding of how projects are created run and managed.

On completion of the unit the candidate should be able to:

- 1 demonstrate an understanding Project Management terminology.
- 2 plan and implement a project plan.
- 3 monitor, manage, and document change of cost/quality/time impact on a project.

### Recommended prior knowledge and skills

Access to this unit will be at the discretion of the centre. However, it would be beneficial if the candidate had good communication, Numeracy and ICT skills as might be demonstrated by the achievement of units in these subject areas at SCQF level 6. In the absence of such evidence, equivalent experience within a work environment would be desirable.

### Credit points and level

1 SQA credit at SCQF level 7: (8 SCQF credit points at SCQF level 7\*)

*\*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from National 1 to Doctorates.*

## **SQA Advanced Unit Specification**

### **Core Skills**

Opportunities to develop aspects of Core Skills are highlighted in the support notes of this unit specification.

There is no automatic certification of Core Skills or Core Skill components in this unit.

### **Context for delivery and assessment**

If this unit is delivered as part of a group award, it is recommended that it should be taught and assessed within the subject area of the group award to which it contributes.

It is also advised that the unit may be taught and/or assessed concurrently with unit HP1X 47 *Team Working in Computing*.

Outcome 1 should be assessed by a controlled restricted response assessment. Outcomes 2 and 3 should utilise a single case study, the evidence should be provided in report format.

## **Unit specification: statement of standards**

**Unit title:** Computing: Introduction to Project Management

The sections of the unit stating the outcomes, Knowledge and/or Skills, and evidence requirements are mandatory.

Where evidence for outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

### **Outcome 1**

Demonstrate an understanding of Project Management terminology.

#### **Knowledge and/or Skills**

- ◆ Project management terms and concepts.
- ◆ Project management methodologies.

#### **Evidence requirements**

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can understand:

- ◆ Project management terms, concepts and methodologies.
  - Understand the definition of a project and stakeholders
  - Understand the use of the Project Triangle (Cost-Quality-Time)
  - Describe tasks and resources
  - Describe brainstorming
  - Describe Work Breakdown Structure (WBS)
  - Identify Schedule/Gantt/Pert Chart
  - Understand scope and the dangers of scope/feature creep
  - Understand how critical path analysis is calculated
  - Identify project management software
  - Identify at least two methodologies

This assessment for this outcome will be closed-book under supervised conditions consisting of a 20 question, restricted-response assessment.

As an alternative to traditional methods (eg paper based), candidates can provide a digital record of evidence to demonstrate Knowledge and/or Skills. Suggested approaches are outlined in the support notes, *Guidance on the assessment of this unit*.

### Outcome 2

Plan and implement a project plan.

#### Knowledge and/or Skills

- ◆ Identifying project tasks.
- ◆ Organise tasks using a work breakdown structure.
- ◆ Establish task durations, relationships and sequence.
- ◆ Establish project milestones and deliverables.
- ◆ Assign resources.
- ◆ Identify the critical path and critical tasks.
- ◆ Modify a project schedule.

#### Evidence requirements

Candidates are required to evidence their Knowledge and/or Skills by showing that they can produce a project schedule for a given brief. The scope and size of the project is at the discretion of the centre, however, the brief should also allow for the organisation of tasks in such a way that there will be a sufficient number of tasks to produce a schedule which covers the following:

- ◆ Create a new project.
- ◆ Identify and organise tasks.
- ◆ Declare project start or finish date.
- ◆ Format the timescale.
- ◆ Task related:
  - entering task information
  - inserting milestones and recurring tasks
  - modify task durations
  - establish task relationships
- ◆ Resource related:
  - enter resource information
  - assign resources to tasks
  - enter costs for work resources and material resources
- ◆ Perform critical path analysis

This is an open-book assessment and centres should take suitable measures to ensure the authenticity of each candidate's submission.

As an alternative to traditional methods (eg paper based), candidates can provide a digital record of evidence to demonstrate Knowledge and/or Skills. Suggested approaches are outlined in the Support notes, *Guidance on the assessment of this unit*.

### Outcome 3

Monitor, manage and report the impact on a project of a change of cost/quality/time.

#### Knowledge and/or Skills

- ◆ Effects of changes in project cost/budget.
- ◆ Effects of changes in project timescale.
- ◆ Effects of changing quality or deliverables of a project.
- ◆ Reporting Project Status.

#### Evidence requirements

This is an open-book assessment and centres should take suitable measures to ensure the authenticity of each candidate's submission.

A candidate is required to demonstrate their understanding of all the Knowledge and/or Skills by being able to manage/alter a project schedule to show the impact of changing any element of the project triangle (time, cost and quality), and report this impact effectively. The candidate must be able to demonstrate by executing the following:

- ◆ Produce a Gantt chart based report to show the effect on the schedule duration of either a cost change or a quality/deliverable change.
- ◆ Produce a cost based report to show the impact on cost of a project when either the time scale or a quality/deliverable change.
- ◆ Integrate one of the above reports within either a word processed document, or slide presentation.

Evidence can be collected as a separate outcome with a case-study/work-based project or included into a larger case-study/work-based project assessment covering Outcomes 2 and 3.

As an alternative to traditional methods (eg paper based), candidates can provide a digital record of evidence to demonstrate Knowledge and/or Skills. Suggested approaches are outlined in the Support notes, *Guidance on the assessment of this unit*.

### Unit specification: support notes

#### Unit title: Computing: Introduction to Project Management

This part of the unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this unit is at the discretion of the centre, the notional design length is 40 hours.

#### Guidance on the content and context for this unit

Outcome 1 is aimed at providing the candidates with a broad knowledge base of project management terms and methodologies. Teacher candidate engagement could be enhanced for this learning outcome through the use of scenario based case study or roll play, this could be further supplemented with project management videos. Many of these videos are scripted in such a way to emphasis the terminology used in project management circles. Some of the knowledge and skills in this learning outcome can be related to physical tasks (eg Brainstorming, WBS, Gantt chart, Pert Chart, and Critical Path analysis). All these areas could include engaging tasks following the initial description of their purpose and reason for being widely using in project management roles.

Project management plays a large role in the development of a wide range of organisational requirements, eg government, construction, engineering, medicine, and especially, in computing and information technology. This unit is intended to provide candidates with the pre-requisite knowledge and skills required to conduct and manage a project. Candidates should acquire knowledge about the fundamental issues and problems of project management, as well as gain skills in the use of project management techniques. This will include the use of project management software solutions. It is with all this in mind that Outcome 2 has been designed. Outcome 2 allows for experiential learning, mostly by using a software tool, chosen by the centre, to create a project plan.

The candidates will also be required to report on their project schedules in the event of outside forces being applied to their project, this will require the candidate to communicate and report on the deliverables and the results of the Project Management process. This will take the form of printouts of various pre-configured reports from the project management software used, as well as printouts from the relevant software applications to which project information has been copied. This will be particularly relevant in Outcome 3. Depending on what project management tools are used will determine what pre-configured report formats are available for communicating the effect of change on a project. These reports will sometimes be formed from creating two reports (one before change and one after the change) and making a comparison between the two reports. While there are many software based project management tools available, one of the most common and widely available would be Microsoft Project. If centres choose this tool, it includes some pre-configured reports which may be applicable to the requirements of this unit.

To assist with the management of projects, and to improve the efficiency and effectiveness of project managers, project management software is now widely used to provide faster, easier, and more effective monitoring and management of the variables in a project, thus improving the chances of success in the completion of projects on time, within budget, and to the quality standards required. This unit is intended to provide candidates with the knowledge and skills required to make use of such project management software to achieve these goals.

## SQA Advanced Unit Specification

Although the unit is expressed in generic terms, it should be related to a context that is familiar to candidates. If necessary, the terminology used in the unit can be adapted to suit the relevant workplace situation.

This unit has been specifically designed to allow centres the latitude of providing each candidate with a comprehensive understanding allied with practical experience of how projects are managed. As all projects normally involve teams of people working toward a common goal it is advisable that this unit be taught concurrently with the SQA Advanced Unit *Team Working in Computing*.

### Guidance on the delivery of this unit

If the unit is to be delivered as part of a group award, it may be located at any suitable point in the Award at the discretion of the centre. If however the group award contains a project based unit, the centre should consider delivering this unit prior to the project based unit to assist the candidate in the organisation of the human, physical and time resources involved in developing such a project. This unit will also benefit candidates when run concurrently with the Unit HP1X 47 *Team Working in Computing*, as there may be opportunity for some overlap of content and therefore possible reduction of time spent on assessment.

It is recommended that a single case study/brief/work based scenario be used to assess the candidate's competence in Outcomes 2 and 3 of the unit. It is at the discretion of the centre however whether a single assessment is used or whether several assessments are used, in stages, matching the sequence of the outcomes.

### Outcome 1

Where possible the terms and concepts should be put into context, and where possible, students would benefit from innovative methods of re-enforcing the concepts (eg instead of explaining brainstorming, have a brainstorming session). To aid fuller understanding of critical path analysis it would be advisable to show/demonstrate/worked examples of how critical path analysis is carried out manually. Discussions on project management methodologies could encompass any of the following examples (Agile, Prince2, Waterfall, ITIL, Rapid Application Development — RAD, Software Development Life Cycle — SDLC, PMBOK).

### Outcomes 2 and 3

These outcomes should be delivered in a practical fashion, ensuring that points of learning are maintained throughout the outcomes. Candidates should be encouraged to work with project specifications and use these to learn about the various aspects of project management. Outcome 3 is likely to create a significant amount of problem solving. Problem solving, while not assessed, should be promoted as this will lead to deeper learning and understanding of the project management triangle as well as the use of project management tools.

### Guidance on the assessment of this unit

#### Assessment guidelines

##### Outcome 1

This assessment will be closed-book under supervised conditions consisting of a 20 question restricted response assessment with an even distribution of Knowledge and/or Skills for this outcome. A pass mark of 50% will apply to this outcome. A different set of questions must be used for re-assessment. The duration of the assessment is one hour.

##### Outcomes 2 and 3

Combined assessment as part of a single case study/brief/work based scenario. The combined approach will be open-book. Authenticity of candidate submissions must be ensured. Submissions to be made in report format.

Assessment submissions could be provided via e-assessment. Outcomes 2 and 3 can be assessed using a standard report submission, however Outcome 2 can be submitted as a recording of candidates' desktop showing keystrokes and menu options to prove compliance with the knowledge and skills identified. Outcome 3 can also be submitted as part of a more holistic assessment where the candidates are asked to present their project status as part of a PowerPoint presentation. The aim being for the candidates to report on how changes to the project have affected timescale/cost/deliverables. This may blend well with Unit HP1X 47 *Team Working in Computing*. An additional option, where this unit is taught along with Unit HP1X 47 *Team Working in Computing*, would be to combine Outcomes 2 and 3 assessments with some/all of the assessments of this unit.

#### Open and distance learning

If this unit is delivered by open or distance learning methods, additional planning and resources may be required for candidate support, assessment and quality assurance. A combination of new and traditional authentication tools may have to be devised for assessment and re-assessment purposes.

#### Opportunities for developing Core Skills

There is no automatic certification of Core Skills or Core Skill components in this unit.



## History of changes

Version	Description of change	Date

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SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of SQA Advanced Qualifications.

**FURTHER INFORMATION:** Call SQA's Customer Contact Centre on 44 (0) 141 500 5030 or 0345 279 1000. Alternatively, complete our [Centre Feedback Form](#).

### General information for candidates

#### Unit title: Computing: Introduction to Project Management

In all areas of business, as well as personal life, humans are continually making plans for the development of a project. Whether it be something to do with work, such as installing computer systems or networks, or designing computer systems, more efficient working processes, or at the personal level of re-designing the garden, or considering alternatives to moving home or building an extension. In all of these areas and many more, we are more than likely to follow some planning path, whether it is an officially recognised method, or some a rule-of-thumb approach we have seen used before, or simply a good guess at how it might be done.

No matter which planning method is used, we are always wiser after the event. With hindsight, as to how it could have been done better, and how we could have foreseen some of the problems before they occurred. One of the most important lessons to be learned therefore is the need to approach the planning process in a methodical step-by-step manner, and to maintain accurate records and documentation throughout.

This organisation and management of the factors involved in the planning and development process can be helped with the use of applications software, to speed up the process and also to provide instant feedback on the status of every aspect of the project development. A range of such project management software tools is now available to support this.

This unit will allow candidates to:

- ◆ demonstrate an understanding project management terminology.
- ◆ plan and implement a project plan.
- ◆ monitor, manage, and document change of cost/quality/time impact on a project.

While studying these points, you will also learn how to schedule the tasks which make up the project along with other important features such as using and assigning resources to the project tasks, scheduling regular meetings and deriving appropriate information from the data set. Finally, you will also look at several tools available to assist you review the quality, the progress and the success of a project.

These skills will provide you with a good foundation for work in a post involving project work.

In **Outcome 1** you will consider many of the fundamentals of project management such as the terminology of project management; the range of skills required by project managers; the stages of the project management development cycle; software available to assist the management of projects.

In **Outcome 2** you will learn how to plan the development and progress of a project by scheduling the phases and tasks, including resources (human and physical), milestone points, team meetings, and identifying critical and non-critical tasks. This may be achieved either manually or by making use of suitable software.

In **Outcome 3** you will be required to modify an existing project schedule in response to an external influence (cost/time/quality change). After modification you will be expected to integrate the effects of the changes into suitable documents that could facilitate effective communication to project stakeholders.