

SQA Advanced Unit specification: general information

Unit title: Mobile Technology

Unit code: HR8F 48

Superclass: CB

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Unit purpose

This Unit is designed to provide candidates with a broad knowledge of the concepts and fundamentals of mobile technologies. Candidates should gain an understanding of some of the factors concerning both the hardware and software designed for mobile technology. Candidates should also become aware of the legal, ethical and social issues surrounding mobile technologies.

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

- 1 Describe factors relating to mobile technology.
- 2 Design an application for a mobile device.
- 3 Use tools and techniques to implement a functional application.

Recommended prior knowledge and skills

Entry is at the discretion of the centre. Learners doing this Unit do not need prior knowledge or experience of mobile technologies. However, it is recommended the candidate has achieved a prior module in software development or web design to give them an opportunity to adapt/develop their existing knowledge and skills into other technologies.

Credit points and level

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

**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.*

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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

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.

Unit specification: statement of standards

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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

Describe factors relating to mobile technology.

Knowledge and/or Skills

- ◆ Types of network utilised by mobile devices
- ◆ Legislation surrounding mobile devices
- ◆ Social and ethical issues
- ◆ Web applications and Native applications
- ◆ Security of data

Evidence Requirements

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

- ◆ describe the various networking technologies in use
- ◆ identify the differences between web and native applications for mobile devices highlighting the pros and cons for each
- ◆ describe security concerns of mobile technology
- ◆ identify various issues surrounding legislation, social and ethical issues

Evidence for the requirements above will be gathered from candidates in the form of a report of approximately 1,000 words. Candidates will be required to produce an evaluation of the criteria set out in the Knowledge and/or Skills section above.

As an alternative to traditional assessment 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 of this Unit.

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Outcome 2

Design an application for a mobile device.

Knowledge and/or Skills

- ◆ Establish the user requirements of the application
- ◆ Implications for mobile interface design
- ◆ Produce a design for a usable interface

Evidence Requirements

The evidence required for this Outcome is combined with Outcome 3.

Outcome 3

Use tools and techniques to implement a functional application.

Knowledge and/or Skills

- ◆ Implement the design produced in Outcome 2 using appropriate development tools relating to web or native applications for a mobile device

Evidence Requirements

In order to achieve Outcomes 2 and 3 candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can:

- ◆ analyse a given scenario and produce a design for a usable mobile application including:
 - Navigation map
 - Screen layouts, including any variations on size and orientation
 - Maximise the usability and accessibility of the application
 - Justify the design and functionality
- ◆ produce a functioning prototype application

A case study covering Outcomes 2 and 3 is to be developed by the candidate. The candidate in consultation with the lecturer can choose the topic and the functionality of the application. The lecturer will ensure that all aspects of the Unit can be assessed. If no case study can be settled on by the candidate the lecturer can assign the default case study.

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For the agreed case study, the candidate will produce:

- ◆ a set of designs that incorporate the factors identified above using appropriate tools including:
 - A navigation map.
 - Sample screen layouts that show position and type of objects suitable for the case study as well as usability factors such as accessibility.
 - Justification for the chosen design and functionality including the advantages and disadvantages.

- ◆ a prototype which is suitable for the case study. The prototype must be in a format and style suitable for a mobile device. Candidates must produce at least one prototype sufficient to demonstrate the screen design, navigational map and accessibility features. The purpose and content of the application is at the discretion of the centre, but must be functional.

Unit specification: support notes

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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

This Unit has been designed to offer candidates an introduction to mobile technology. The main focus of the Unit should be on the design and creation of a simple usable application.

The intention of this Unit is to keep the Outcomes as generic as possible leaving it up to each centre as to which tools and devices to opt for. Outcomes 2 and 3 can both be completed by writing a web application using HTML techniques as well as writing a native application using programming languages such as Java/Objective C /.NET or an application builder with a drag and drop interface such as Application Inventor. In a bid to keep this generic model and to add an element of future proofing, no APIs native to a language, model, make or age of device are specifically covered within the Unit but centres are free to include these as appropriate.

Guidance on the delivery of this Unit

Delivery of the Unit would be best served by completing Outcome 1 first. Integration of Outcomes 2 and 3 will provide a more holistic approach akin to the production of a software product.

Should a centre opt to create a web application for these Outcomes, then the centre should use a web server to host the sites. If however, a centre chooses to use a native application then the functionality and content is at the discretion of the centre based upon the technology taught. All applications in theory should be viewable through emulated hardware making the need for physical devices less of a priority.

Guidance on the assessment of this Unit

Outcome 1 should be assessed by means of a report or other digital means. The remaining Outcomes should be assessed via a project of the candidates choosing.

Assessment Guidelines

Outcome 1

Outcome 1 would typically be a 1,000 word essay by the candidate. However, there is scope for the Outcome to be completed digitally. This could be achieved through a video recorded presentation or an auditory report

Outcome 2

See Outcome 3.

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Outcome 3

The type of project undertaken by the candidate may include an application for the local centre offering information to existing and potential candidates and staff regarding submission dates, menus and holidays.

If so desired, the centre could take an existing programming/web design project written by the candidate in a previous module and use this as the basis of assessment for Outcomes 2 and 3, effectively making a mobile version of their own existing application. This would allow the candidate to build on existing knowledge and allow for a more functional application on completion.

Online and Distance Learning

This Unit should lend itself to distance learning well, due to the theoretical and open-book nature of Outcome 1. The design and development for Outcomes 2 and 3 can both be completed via tools available to the user from the internet or their chosen centre.

Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*.

Opportunities for developing Core Skills

There may be opportunities to gather evidence towards Core Skills, however there is no automatic certification of Core Skills or Core Skill components in this Unit.

Equality and inclusion

This unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

History of changes to Unit

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: Mobile Technology

This Unit is designed to provide you with knowledge about the fundamentals of mobile technology. This module is split into two main sections. The first section is theoretical covering many aspects surrounding mobile technology such as networks, hardware, social and ethical issues. The second section is practical and focuses on the design and implementation of mobile technologies.

While studying Outcome 1 you will gain knowledge on the various types of network utilised in mobile technology involving their benefits and drawbacks in terms of speed, security and usage. You will also learn about social and ethical issues surrounding mobile devices as well as security and legislation around the protection of data and devices. Finally you will be introduced to the theory behind web applications as well as native applications, how they compare and when and how to them most effectively.

The main focus of Outcome 2 is in the design of an actual application for a mobile device. You will be introduced to technologies which can be utilised to turn new or existing applications into mobile compatible variants. You will be shown good design techniques such as how to cater for the orientation of devices as well as varying screen sizes. You will be introduced to concepts regarding how to make the best use of the screen space available to the user.

Outcome 3 focuses on the practical tasks of implementing your design. You will have the opportunity to apply the theory and designs that you learned in Outcomes 1 and 2 to implement your application onto an actual mobile operating system.

If you are studying for a Group Award in which this Unit is mandatory then the knowledge gained in studying this Unit will be examined in the Graded Unit examination.

To complete this Unit successfully, you will have to achieve a satisfactory level of performance in both the theoretical and practical Outcomes of the Unit. You will be allowed unlimited access to paper-based and online resources during the assessments. The assessments will be open-book.

On completion of this Unit you should be able to:

- 1 Describe factors relating to mobile technology.
- 2 Design an application for a mobile device.
- 3 Use tools and techniques to implement a functional application.