



Higher National Unit specification: general information

Unit title: Developing Mobile Web Based Applications:
An Introduction

Unit code: H17J 34

Superclass: CB

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Unit purpose

This Unit is designed to introduce candidates to the design and production for web based apps for mobile devices. It is intended for candidates undertaking HN in Computing or a related area that requires knowledge of developing a mobile web based app.

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

- 1 Describe the features of the target device and industry structure that can affect the production of mobile web based applications.
- 2 Design a solution for a mobile web based application.
- 3 Develop a solution for a mobile web based application.

Recommended prior knowledge and skills

Access to this Unit will be at the discretion of the centre. It is recommended that candidates have prior experience of using computer systems or studied a programming language at NQ level. In addition, candidates could have prior knowledge and experience of programming and graphic/visual design of web site development, such as *Computing: Website Design and Development* (F182 11) and *Computing: Web Design Fundamentals* (F181 11). Alternatively, candidates should have considerable practical work experience and some appreciation of the role of program design and implementation.

Credit points and level

2 Higher National Unit credits at SCQF level 7: (16 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 Access 1 to Doctorates.*

General information (cont)

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.

Higher National Unit specification: statement of standards

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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 the features of the target device and industry structure that can affect the production of web based mobile applications.

Knowledge and/or Skills

- ◆ Research of the industry structure
- ◆ Describe the platform specific component affecting the user experience
- ◆ Target device range
- ◆ Principles applicable to the mobile environment
- ◆ Product development and design solutions

Evidence Requirements

To achieve this Outcome the candidate will need to demonstrate their Knowledge/Skills by producing an analytical report or presentation that includes all of the following:

- ◆ Description of the Mobile Industry Structure
- ◆ Explanation of the differences between available platforms
- ◆ Description of a range of target devices
- ◆ Explanation of the principles applicable to the mobile environment
- ◆ Comparison of product development and design solutions

This is an open-book assessment that should take place in an unsupervised environment. Assessors must assure themselves of the authenticity of each candidate's submission.

Higher National Unit specification: statement of standards (cont)

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Outcome 2

Design a solution for a mobile web based application.

Knowledge and/or Skills

- ◆ User requirements
- ◆ Platform restraints
- ◆ Target device
- ◆ User interface
- ◆ Icons
- ◆ Colour
- ◆ Typography
- ◆ Legibility

Evidence Requirements

To achieve this Outcome the candidate will need to demonstrate their Knowledge and/or Skills by producing design documentation and designed elements which include all of the following:

- ◆ User requirements
- ◆ Platform restraints
- ◆ Design aspects for a specific target device
- ◆ Design of a workable User interface
- ◆ Design of Icons for use within the application
- ◆ Effective use of Colour
- ◆ Cogent use of Typography
- ◆ Design of legible graphical elements

This is an open-book assessment that should take place in an unsupervised environment. Assessors must assure themselves of the authenticity of each candidate's submission.

Higher National Unit specification: statement of standards (cont)

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Outcome 3

Develop a solution for a mobile web based application.

Knowledge and/or Skills

- ◆ Usability
- ◆ Scripting
- ◆ Navigation
- ◆ Use of effective technologies
- ◆ Use of correct file formats
- ◆ Generate code to handle specified events
- ◆ Features specific to Mobile Web-based applications including:
 - Client-side validation data
 - Dynamic production of code suitable to target device
 - Dynamic production of code suitable to platform requirements
 - Both screen and key use of prompts and alerts for user interaction
 - Use of events and handlers

Evidence Requirements

To achieve this Outcome the candidate will need to demonstrate their Knowledge and/or Skills by developing a working design solution for a web based mobile app that demonstrates all of the following:

- ◆ Production of an easy to use mobile web based application
- ◆ Production of an effective navigation route for a mobile web based application
- ◆ Use of correct technologies for specific device
- ◆ Scripting of events suitable for target device
- ◆ Scripting of events that include:
 - Touch screen events
 - Key control events
 - Change events
 - Button events
 - Submit events
- ◆ Saving files in correct formats and location

This is an open-book assessment that should take place in an unsupervised environment. Assessors must assure themselves of the authenticity of each candidate's submission.

Higher National Unit specification: support notes

Unit title: Developing Mobile Web Based Applications: An Introduction

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 time for design and production is 80 hours.

Guidance on the content and context for this Unit

This Unit has been developed with a view towards the development of an understanding of the components (industry structure, scripting, design elements, target device and service supplier) used to create a web based mobile application. This Unit will cover how effectively the functionality of the application works and looks. The intention of the Unit is to keep the Outcomes as generic as possible to allow the Unit to be delivered using any of the scripting languages and design tools that are available that work on specific appliances.

This Unit is aimed at the following possible job roles or an interest in:

- 1 Interface designers
- 2 Computer programmers
- 3 Interactive designers
- 4 Graphic designers
- 5 Information architects
- 6 Brand design and development
- 7 Visual designers

Guidance on the delivery of this Unit

Delivery of the Unit would be best served by completing Outcome 1 first. Outcome 1 should be assessed by means of a report. This Outcome will give the candidates a general backing in the understanding of the Unit goals. The remaining two Outcomes should be assessed via a project. Integration of Outcomes 2 and 3 will provide a more holistic approach more akin to the production and design of a software product. Centres should use a Web Server to accommodate server side scripting.

Database access can be done by giving the candidate a predefined database or by the candidate composing a database relevant to their chosen project. The actual database package used does not matter so long as it is at least Open Database Connectivity (ODBC) compliant.

The type of project undertaken by the candidate may include a game, quiz or an e-commerce style 'shopping cart' that accesses a database of products. If a 'shopping cart' style of application is undertaken, the candidate would not be required to activate any means of credit or debit card payment.

The Unit may be integrated with other related Units covering production and design of web based products.

Higher National Unit specification: support notes (cont)

Unit title: Developing Mobile Web Based Applications:
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Assessment Guidelines

Outcome 1

Outcome 1 could be evidenced by a report or a presentation by the candidate covering the Evidence Requirements bullet list. Both the report and the presentation should be backed up with research presented as written, pictorial and graphical information. Candidate should evaluate the information gathered in writing their report or presentation. The report should consist of a word count in the region of 1,000. The presentation should last no less than 10 minutes.

Outcome 2

Evidence could be displayed in the design quality, workability and effectiveness of all the graphic elements. Legibility with an understanding of typography, Unit interface design and use of colour should all be evaluated to ensure a high quality look and feel is applied and adhered to. The design should meet the design objectives and be designed to meet the target audience expectations and needs. The design samples and files produced by the candidate will be assessed for their use of correct formats and for the development of vector and bitmap elements.

The candidates should supply the original un-flattened files to allow assessment of authenticity of the design and production of the graphic elements and to assess their creative and design production skills.

Outcome 3

In Outcome 3, the evidence required here is the workability of the application. Evidence will be witnessed within the aspects of the scripting and production of workable elements through the use of events for the application and the different interactive activities. Candidates will use suitable code for the chosen device and use appropriate file formats for the graphical elements produced. Candidates will store the files at a location from which the application can be tested and downloaded.

Online 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.

Higher National Unit specification: support notes (cont)

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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

Problem Solving, ICT and Communication Core Skills could be developed within this Unit.

Communication skills will be developed as the candidate completes Outcome 1 in the writing of a report. If the candidate presents their report, the communication skills could be developed as a sales pitch for an application to a client. Also, taking part in discussions, explaining concepts and solutions, writing the report or notes for the presentation and keeping written records of the development stages will add to the candidate's communication skills development.

Problem Solving will be developed while the candidate resolves design, technical, product and scheduling issues as they work through the Outcome 2 and 3. Making decisions about what to do, making arrangements and plans and carrying them out will assist in the planning of the production of the application. The thinking about all aspects of the situation and design/production problem will develop the candidate's critical thinking skills. This will all be evaluated by the functionality and workability of the designed and produced application.

ICT skills will be developed with the use of software packages to create graphical elements, write reports, developing a presentation and in the production of internet scripting.

Disabled candidates and/or those with additional support needs

This Unit specification is intended to ensure that there are no artificial barriers to learning or assessment. The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative Outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements for Candidates with Additional Support Needs (BA 2399, SQA, due 2004)*.

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. 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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General information for candidates

Unit title: Developing Mobile Web Based Applications: An Introduction

Mobile and wireless application design is complex and challenging. Selecting an application technology and designing a mobile web application require an understanding of the benefits, costs, context, and restrictions of the end user, target device and industry structure. This Unit is designed to introduce you to the skills required for developing mobile web based applications.

In Outcome 1, the Unit begins by introducing the features that can affect the production of mobile web applications. You will be introduced to the key concepts and attributes affecting the user experience to clarify the components used to make the user experience positive and enjoyable. You will address target device and industry conditions and gain an understanding of product development and design solutions. This Outcome will involve you researching areas specific to your chosen design and production brief. Your research will assist in the design and production of your application ensuring you meet the technical specifications of your chosen target device.

Outcomes 2 and 3 are practical in nature. For Outcome 2 you will be required to produce a design solution for a mobile web-based application using the principles of software engineering and suitable graphic production programmes that are applicable for the specified device. You will develop research skills to help the development of your design solution.

Outcome 3 will introduce you to the aspects of the scripting and production of elements and events for your application and different interactive activities. You will use suitable code for the chosen device and create, store and use appropriate file formats for the graphical elements. You will store the files at a location from which the application can be tested and downloaded.

On completion of this Unit you should feel suitably confident to extend the experience to cater for mobile web based applications.