



Higher National Unit specification

General information for centres

Unit title: Web Development: Complex Content

Unit code: F200 34

Unit purpose: This Unit is designed to introduce candidates to the knowledge and understanding of designing, implementing and coding, testing and deploying complex web solutions which include interactive, rich media and external data components.

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

- 1 Describe current web development technologies.
- 2 Design a complex web solution for a given brief.
- 3 Implement and code a complex web solution for a given brief.
- 4 Add rich media and interactive content to the complex web solution.
- 5 Test and deploy a complex web solution.

Credit points and level: 2 HN 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.*

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the centre and the following recommendations are for guidance only. Candidates should have the knowledge and skills to develop basic, static web sites with to recognised standards. This may be evidenced by the possession of HN Unit F1YY 34 *Web Development: Essential Content*.

Core Skills: There are opportunities to develop the Core Skills of Problem Solving at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

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.

Assessment: Evidence is required that candidates have achieved all Outcomes.

Candidates are encouraged to use the Internet in any research etc, however, the evidence produced must be the candidate's own words. Assessors should assure themselves of the authenticity of candidate's evidence.

General information for centres (cont)

Written and/or oral recorded, performance and product evidence is required which demonstrates that the candidate has achieved the requirements of all of the Outcomes showing that the candidate has appropriate knowledge and understanding of the content of this Unit.

This Unit should be assessed by the assessment tasks detailed as follows:

- 1 Outcome 1 is a closed-book assessment and should take the form of a set of objective questions where the candidate is required to produce evidence of their knowledge that covers all the Evidence Requirements

The holistic assessment that integrates assessments for Outcomes 2, 3, 4 and 5, could take the form of a web development project that covers all Evidence Requirements. This should be an open-book, supervised assessment.

- 2 Outcome 2 is an open-book assessment and should take the form of a practical assessment carried out under supervised conditions and is designed to demonstrate the candidate's knowledge and/or skills in the design of a complex client web solution for a given brief.
- 3 Outcome 3 is an open-book assessment and should take the form of a practical assessment carried out under supervised conditions and is designed to demonstrate the candidate's knowledge and/or skills in the implementation and code a complex solution for a given brief.
- 4 Outcome 4 is an open-book assessment and should take the form of a practical assessment carried out under supervised conditions and is designed to demonstrate the candidate's knowledge and/or skills in the addition of rich and interactive content to the complex client web solution.
- 5 Outcome 5 is an open-book assessment and should take the form of a practical assessment carried out under supervised conditions and is designed to demonstrate the candidate's knowledge and/or skills in the testing and deployment of the complex client web solution.

It is recommended that the assessments for Outcomes 2, 3, 4 and 5 should be integrated into one holistic assessment. The practical assessments, for each Outcome, within this Unit should be based on the same case study.

Assessors should ensure themselves of the authenticity of the candidate's evidence.

The Assessment Exemplar Pack for this Unit provides sample assessment materials including assessor checklists, practical tasks and an instrument of assessment for the knowledge. Centres wishing to develop their own assessments should refer to the Assessment Exemplar Pack to ensure a comparable standard.

Higher National Unit specification: statement of standards

Unit title: Web Development: Complex Content

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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 current web development technologies

Knowledge and/or Skills

- ◆ CSS Media Support
- ◆ Transferring files to servers
- ◆ Methods of accessing remote sites
- ◆ SSL support
- ◆ Server-side includes
- ◆ Server Error resolutions

Evidence Requirements

Candidates will need to provide written and/or oral recorded evidence to demonstrate their Knowledge and/or Skills by showing that they can describe the **six** web development technologies. A candidate's response can be judged to be satisfactory where evidence provided shows that the candidate is able to:

- ◆ describe how CSS is used to support different media formats, including text, aural
- ◆ identify and describe two different ways of transferring files to servers
- ◆ identify and describe two different methods of accessing remote sites
- ◆ describe the uses of server-side include
- ◆ describe SSL support
- ◆ identify and describe server error messages that visitors to your site could encounter

The assessment should take the form of a series of objective questions conducted under closed-book conditions. Candidates must not be allowed any text books, handouts, Internet access or notes in the assessment.

This assessment should last no more than 1 hour. The instrument of assessment must provide opportunities for the Outcome to be fulfilled by means of sampling across the range of the Content of Outcome 1.

Achievement can be decided by use of a 60% cut-off score.

Where re-assessment is required it should contain a different sample from the range of mandatory content.

Higher National Unit specification: statement of standards (cont)

Unit title: Web Development: Complex Content

Outcome 2

Design a complex web solution for a given brief

Knowledge and/or Skills

- ◆ Architect/design for redesign
- ◆ Architect/design for consistency
- ◆ Fundamental components
- ◆ Rich media components
- ◆ Interactive components

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can design a complex client web solution for a given brief. Candidates responses can be judged to be satisfactory where the evidence provided shows the candidate is able to:

- ◆ design a complex client web solution by producing a project requirements document, a planned site map and page content summaries
- ◆ explain/justify the chosen architecture methods to be used
- ◆ explain/justify the rich media components chosen
- ◆ explain/justify the interactive components chosen

Assessment Guidelines

See Outcome 5.

Outcome 3

Implement and code a complex web solution for the given brief

Knowledge and/or Skills

- ◆ Easy redesign
- ◆ Advanced stylesheet techniques
- ◆ Server-side includes
- ◆ Integrate external data
- ◆ Transform/Style external data

Evidence Requirements

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills by showing that they can implement and code a client web solution.

Higher National Unit specification: statement of standards (cont)

Unit title: Web Development: Complex Content

Candidates' responses can be judged to be satisfactory where the evidence provided shows the candidate is able to implement and code a client web solution by producing a website that:

- ◆ demonstrates methods/strategies for easy reuse and rebuild (stylesheets, templates, libraries etc)
- ◆ integrates and styles external data
- ◆ uses advanced stylesheet techniques
- ◆ uses basic server-side includes

Assessment Guidelines

See Outcome 5.

Outcome 4

Add rich media and interactive content to the complex web solution

Knowledge and/or Skills

- ◆ Rich media text
- ◆ Rich media video
- ◆ Rich media sound
- ◆ Rich media buttons
- ◆ Image maps
- ◆ Pop-up menus
- ◆ Show-hide layers
- ◆ Open browser window
- ◆ Swap image
- ◆ Pop-up message
- ◆ Timelines

Evidence Requirements

Candidates will need evidence to demonstrate their Knowledge and/or Skills by showing that they can add rich media and interactive content to the complex client web solution.

Candidates' responses can be judged to be satisfactory where the evidence provided shows the candidate is able to code and implement a web solution that includes a variety of rich media content and a variety of interactive content.

Assessment Guidelines

See Outcome 5.

Higher National Unit specification: statement of standards (cont)

Unit title: Web Development: Complex Content

Outcome 5

Test and deploy a complex web solution

Knowledge and/or Skills

- ◆ Validate
- ◆ Accessibility assurance
- ◆ Link check
- ◆ Size reports
- ◆ Transfer of files to servers
- ◆ Download time testing

Evidence Requirements

Candidates will need evidence to demonstrate their Knowledge and/or Skills by showing that they can test and deploy complex web solution. Candidates' responses can be judged to be satisfactory where the evidence provided shows the candidate is able to produce a valid, tested, working complex web solution. This can be achieved by submitting a url to completed, tested website and production of a test log and bug report that covers all Knowledge and Skills.

Assessment Guidelines

The holistic assessment that integrates assessments for Outcomes 2, 3, 4 and 5 could take the form of a complex web development project. The assessment should be carried out over an extended period.

The candidate should be provided with a realistic client brief from which they provide a complex web solution. The brief must be sufficient enough to allow the candidate to design, implement, code, test and deploy a web solution that includes interactive, rich media and external data components and covers all Evidence Requirements for Outcomes 2, 3, 4 and 5.

The candidate may be given access to a selection of text, images, rich media elements and external data required on this website as this Unit is designed to give candidates knowledge and understanding of designing, implementing and coding, testing and deploying complex web solutions, rather than creating content.

Throughout the development all work must be organised and contained in a production folder.

It is recommended that this assessment is based around a theme. Candidates could be given a range of themes to choose from or select their own them from a source agreed by the assessor. Where candidates select their own theme this must be approved by the assessor.

Administrative Information

Unit code:	F200 34
Unit title:	Web Development: Complex Content
Superclass category:	CB
Original date of publication:	August 2007
Version:	02

History of changes:

Version	Description of change	Date
02	Amendments made to Outcome 1 include reduction of assessment time and addition of cutting score. Removal of Knowledge point in Outcome 5.	22/07/10

Source: SQA

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Higher National Unit specification: support notes

Unit title: Web Development: Complex Content

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 80 hours.

Guidance on the content and context for this Unit

This Unit is designed to give candidates knowledge and understanding of designing, implementing and coding, testing and deploying complex web solutions which include interactive, rich media and external data components.

The Unit is at SCQF level 7 and the Unit has been developed as part of the HNC Interactive Media award, however, this does not preclude the use of this Unit in other awards where it is appropriate.

This Unit is part of the PDA Web Development at SCQF level 7 and maps (at the time of writing to the Adobe Certificate Expert (Dreamweaver) certification.

An up-to-date list of Adobe Dreamweaver ACE exam topics can be found at:

<http://partners.adobe.com/public/ace/main.html>.

Outcome 1 is designed to give the candidates knowledge on common web development technologies that they may encounter when developing websites. These include the methods of transferring files to servers like FTP and SFTP, different methods of accessing the remote site like FTP, LAN, VSS and WebDAV. The importance of secure sites is introduced in the form of Secure Socket Layers (SSL). The five main server request errors, 400 Bad Request, 401 Authorisation Required, 403 Forbidden Document, 404 File not Found and 500 Internal server Error should be explained.

Outcome 2 is designed to give the candidates knowledge and skills in thoughtful web design of a complex site. In this context, complex means a web solution that may require various rich media elements like sound, video, animation, interactivity in the form of pop-up menus, showing/hiding layers etc, integrating of external data, for example, in the form of xml data from RSS feeds.

It requires the candidates to consider and justify the inclusion of rich media and interactive content of a website, in terms of whether they will benefit the purpose of the site. Candidates are required to explain the methods that they will implement during development to make the website consistent and easy to redesign. In other words, good practice in design skills. This includes using CSS or other stylesheets, templates, libraries and snippets of reusable code.

If this Unit is being used for Adobe Dreamweaver exam preparation, templates — editable regions, optional regions, repeating regions, setting template properties and template expressions should be covered.

Higher National Unit specification: support notes (cont)

Unit title: Web Development: Complex Content

Outcome 3 is intended to give the candidate knowledge and skills to implement and code a complex web solution. The candidate is expected to implement the methods explained in Outcome 2, ie efficient design methods (for example using templates, libraries and reusable chunks of code), CSS techniques such as the box model and absolute and relative positioning, designing using divs, overflow, pseudo-elements and form elements, CSS media type support, cascade of styles, inheritance and specificity, ID, class and tag selectors, should be introduced and the relevant option(s) applied. Server-side includes and its uses should be introduced with the difference between html and shtml files being explored. Integration and styling of xml-based data, such as RSS feeds should be introduced.

Outcome 4 is designed to give the candidate knowledge and skills to add interactivity to a web site. This could be carried out by coding in either Javascript or VBscript, however, if this Unit is being used for Adobe Dreamweaver exam preparation, the following built in Dreamweaver behaviours should be covered: Pop-Up menus, Show-Hide Layers, Open Browser Window, Swap Image, Go To URL, Pop-Up Message and Timelines. This Outcome is also designed to give the candidate knowledge and skills to add rich media elements to a website. Importing of video, sound, buttons and animation should all be covered.

If this Unit is being used for Adobe Dreamweaver exam preparation, the rich media elements should cover Flash text, Flash Video, Flash Buttons and Flash Paper.

Outcome 5 covers the testing and deployment of a complex web solution. The candidate should be familiar with validating the website to W3C standards, making sure the website is accessible and demonstrate to WCAG Priority 1 and 2 checkpoints and Section 508.

The candidates should be aware of the five major error messages that visitors to a site could encounter, ie, 400 Bad Request, 401 Authorization Required, 403 Forbidden Document, 404 File Not Found and 500 Internal Server Error. Testing should be covered explicitly for error 403 and 404. They should know how to generate customised error messages, by designing html pages that describe the error number and editing the html access file. All links must work and file sizes checked before transfer to a server.

If this Unit is being used for exam preparation Macromedia Web Publishing System: notification and event logging, cloaking, synchronisation, background file transfer and compare file must be covered.

This Unit is designed to give candidates knowledge and understanding of designing, implementing and coding, testing and deploying complex web solutions which include interactive, rich media and external data components within the nominal 80 hours specified by the Unit.

During delivery candidates should have access to propriety web development software, basic text editor for writing raw code and Internet access, for both reference and for registering websites. Candidates should also have access to a web server, which can either be internal or external.

If this Unit is been delivered for exam preparation then the candidate must have access to Adobe (formerly Macromedia) Dreamweaver. They should also have access to Adobe Flash for the rich media content delivery.

Higher National Unit specification: support notes (cont)

Unit title: Web Development: Complex Content

Guidance on the delivery and assessment of this Unit

It is not necessary to deliver the Outcomes in sequence as it may be better for the candidates to have some skills and knowledge of tools and techniques required to build a website before attempting the assessment for Outcome 1. However, if the assessment strategy being used is the holistic project that covers the assessment for Outcomes 2, 3, 4 and 5, the candidate must design, implement/develop, test and deploy in that natural order. This assessment for the holistic project requires that the candidate be given a website brief from a real client or issued one from the assessor. The brief should be complex enough that the website required matches all the Evidence Requirements of Outcomes 2, 3, 4 and 5.

It is not a requirement that the candidate has skills to write the content and produce good quality images and any other media elements for this website, however, if this Unit is taught at a time when the candidate has developed image manipulation, animation or any other useful skills they should be encouraged to include their own material in the website produced.

It is envisaged that the time allocated for the holistic project is in the region of 20–30 hours. This assessment should take place under supervised conditions. This still allows for candidates to work on the assessment outwith class times, in this instance, the assessor must monitor the candidate's progress. In all cases it is imperative that the centre ensures authenticity of the candidate evidence.

Opportunities for developing Core Skills

There are opportunities to develop the Core Skill(s) of Problem Solving at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

Open 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.

For further information and advice, please see *Assessment and Quality Assurance for Open and Distance Learning* (SQA, February 2001 — publication code A1030).

Candidates with disabilities and/or additional support needs

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. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (www.sqa.org.uk).

General information for candidates

Unit title: Web Development: Complex Content

This Unit is designed to give you the knowledge and understanding of designing, implementing and coding, testing and deploying complex web solutions which include interactive, rich media and external data components.

On completion of the Unit you should be able to:

- 1 Describe current web development technologies.
- 2 Design a complex web solution for a given brief.
- 3 Implement and code a complex web solution.
- 4 Add rich media and interactive content to the complex web solution.
- 5 Test and deploy a complex web solution.

You will look at the common web development technologies such as how CSS is used to support different media formats — print, aural, handheld — different ways of transferring files to servers, different methods of accessing remote sites and major error messages that visitors to your site could encounter.

The Unit also will also help you to develop the knowledge and skills required to design effective websites and select relevant content required for a website. You will gain practical experience in implementing and coding a website that uses advanced stylesheet techniques, and includes rich media and interactive content. At this stage, you will be using a combination of visual authoring and coding techniques.

You will then learn how to test the website for quality assurance and deploy it to a server.

There will be 2 assessments in this Unit. The assessment for Outcome 1 consists of questions, which need to be answered in class, under closed-book, supervised conditions. This assessment requires you to have an understanding of some current web development technologies. It will probably take about 1.5 hours to complete.

The other assessment, for Outcomes 2, 3, 4, and 5, will be a project in which you are required to actually plan, design, develop, test and deploy a complex website from a client brief.