



Higher National Unit specification

General information for centres

Unit title: Web Development: Dynamically Generated Content

Unit code: F6C2 35

Unit purpose: This Unit is designed to enable candidates to gain knowledge and skills of dynamic data driven web application development and apply that knowledge when planning, designing and developing a dynamic web application with data driven content using a server side language.

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

- 1 Investigate dynamic data driven web development.
- 2 Plan and design a dynamic data driven website.
- 3 Implement a dynamic data driven website.
- 4 Test and deploy a dynamic data driven website.

Credit points and level: 2 HN credits at SCQF level 8: (16 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 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 produce a standards compliant static website using a mark-up language and stylesheets. This may be evidenced by the possession of the HN Unit F1YY 34 *Web Development: Essential Content*.

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

General information for centres (cont)

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

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 questions where the candidate is required to produce evidence of their knowledge of dynamic data driven web application development.
- 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 planning and designing a dynamic data driven web application.
- 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 implementing a dynamic data driven web application.
- 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 testing and deploying a dynamic data driven web application.

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

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

Higher National 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

Investigate dynamic data driven web development

Knowledge and/or Skills

- ◆ Types of Application
- ◆ Languages
- ◆ Development Server Configurations
- ◆ Frameworks/Integrated Development Environments(IDE)
- ◆ Databases
- ◆ User Platforms

Evidence Requirements

Evidence of all the Knowledge and/or Skills in this Outcome will be assessed using a representative sample covering the bullet points below:

- ◆ Identify and explain the types of dynamic data driven web applications.
- ◆ Identify and explain current server side languages. The candidates must identify the language and its origin, state any requirements for using the language and recognise any distinguishing features of the language.
- ◆ Identify and explain current web development server configurations.
- ◆ Identify and explain the use of Frameworks and Integrated Development Environments for web development.
- ◆ Identify and explain current databases systems used for web hosting.
- ◆ Identify and explain the implications of developing dynamic content websites for multiple platforms.

Higher National Unit specification: statement of standards (cont)

Unit title: Web Development: Dynamically Generated Content

Assessment Guidelines

Evidence for all Knowledge and Skills in this Outcome will be assessed using a representative sample of twenty questions. The assessment will be supervised, controlled and under closed-book conditions and 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. This assessment must change on each assessment occasion. Achievement can be decided by use of a 60% cut-off score.

Outcome 2

Plan and design a dynamic data driven website

Knowledge and/or Skills

- ◆ Requirements document
- ◆ Site structure and page layouts
- ◆ Data source

Evidence Requirements

Candidates will need to provide evidence to demonstrate their knowledge and/or skills by showing that they can analyse a client brief, prepare a requirements document, plan and design a site structure and page layout, implement a suitable data source for a dynamic data driven web application.

A candidates' response can be judged to be satisfactory where the evidence provided shows the candidate is able to:

- ◆ plan and design a dynamic data web application by producing a site specification, a site structure and page content summaries
- ◆ implement an appropriate data source

Assessment Guidelines

See Outcome 4.

Higher National Unit specification: statement of standards (cont)

Unit title: Web Development: Dynamically Generated Content

Outcome 3

Implement a dynamic data driven website

Knowledge and/or Skills

- ◆ Server Side coding
- ◆ Data Source
- ◆ Database Interrogation
- ◆ Security Features
- ◆ Session Management

Evidence Requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can develop a dynamic data driven web application utilising a server side language and a data source. A candidates' response can be judged to be satisfactory where the evidence provided shows the candidate is able to:

- ◆ implement a suitable data store/database/data source with multiple tables
- ◆ connect to a data source
- ◆ develop the structure and content of a dynamic data driven website
- ◆ develop web applications
- ◆ use a server side language to facilitate database interrogation
- ◆ use a server side language to implement security features
- ◆ use a server side language to pass and obtain data from forms
- ◆ use a server side language to pass and obtain data via the URL
- ◆ use a server side language to implement SQL queries
- ◆ use a server side language to implement session management

Assessment Guidelines

See Outcome 4.

Higher National Unit specification: statement of standards (cont)

Unit title: Web Development: Dynamically Generated Content

Outcome 4

Test and deploy a dynamic data driven website

Knowledge and/or skills

- ◆ Test
- ◆ Deploy

Evidence Requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can test and deploy a valid dynamic web application.

A candidates' response can be judged to be satisfactory where the evidence provided shows the candidate is able to:

- ◆ produce and implement a test strategy and plan which covers all web application functionality
- ◆ explain the preparation requirements and deployment of a dynamic data driven website

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

The candidate should be provided with a realistic brief which is sufficient enough to allow the candidate to plan, design, implement, test and deploy a dynamic data driven web application and covers all Evidence Requirements for Outcomes 2, 3 and 4.

Assessment Guidelines

The candidate may be given the text, images, any other media and the data required in this web application as the aim of this Unit is to give the candidate knowledge and skills to plan, design and implement a dynamic web application with data driven content using a server side language.

Further information can be found in the support notes.

Administrative Information

Unit code: F6C2 35

Unit title: Web Development: Dynamically Generated Content

Superclass category: CB

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History of Changes:

Version	Description of change	Date

Source: SQA

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Higher National Unit specification: support notes

Unit title: Web Development: Dynamically Generated 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 has been written in order to allow candidates to develop knowledge, understanding and skills of dynamic data driven web application development and apply that knowledge when planning, designing and developing a dynamic web application with data driven content using a server side language.

The Unit is at SCQF level 8 and the Unit has been developed as part of HND Interactive Media award. However this does not preclude the use of this Unit in other awards where it is appropriate.

Outcome 1 is designed to give the candidates knowledge of the types of web applications, various development languages, server configurations, databases and development environments that can be used for developing dynamic data driven web applications

The following information is current at the time of writing.

The list that is deemed important material to cover in this Outcome is:

- (a) Secure applications, eg login and user authentication, Ecommerce applications, eg product catalogues, shopping carts, Back-end applications, eg product maintenance, report applications and Community applications, eg content management system, web forums, blogs
- (b) PHP, ASP, .NET, Ruby on Rails, ColdFusion, JSP, CGI, Perl, Python
- (c) Windows, Linux, Unix, IIS, Apache, Mac OS X server, ColdFusion
- (d) Ruby on Rails, Visual Web Developer Studio, WebObjects etc
- (e) mySQL, SQL Server, Oracle, MS Access
- (f) Future proofing sites by considering developing for different platforms including desktop, laptop, mobile, handheld devices, TV

Outcome 2 is intended to give the candidate knowledge and/or skills to plan and design a dynamic data driven website. This Outcome does not focus on the visual design, but rather the functional design so that the candidate considers all technical and functional requests from the client. However, if the candidate is studying on the HND Interactive Media they will have studied HN Units F1VS 34 *Interactive Media: Planning*, F1VV 34 *User Interface Design* and F6BV 35 *Human Computer Interface* and it would be expected that the skills from these Units be put into practice during this Unit. The data given to the candidate should be in a format that can easily be converted into a suitable data source.

Higher National Unit specification: support notes (cont)

Unit title: Web Development: Dynamically Generated Content

Outcome 3 is intended to give the candidate skills to develop a dynamic data driven web site that involves web applications utilising a server side language and a data source. The centre may choose to deliver this Unit using any appropriate server side language and the language and programming concepts should be introduced from the beginning. A frameworks or IDE may be used for development, but the candidate must also be able to write raw code in the language that the centre has chosen to use for delivery of this Unit. The language should be taught to a level that enables the candidate to implement at least the following:

- ◆ Connect to a data source
- ◆ Develop various web applications
- ◆ Facilitate database interrogation — create, read, update, delete
- ◆ Security features like logins and user authentication
- ◆ Pass and obtain data from forms
- ◆ Pass and obtain data via the url
- ◆ SQL queries — search and results, filters, sorts
- ◆ Session management

The candidate should be able to implement various web applications and integrate them into a website.

Outcome 4 intended to give the candidates the knowledge and skills to be able to test and deploy a valid dynamic data driven website. If the candidate is studying the HND Interactive Media, they will have covered testing in previous mandatory Units. The website should be tested for all functionality and errors logged and remedied where necessary. It is not necessary for the candidate to actually upload the website due to possible cost implications for hosting of a data driven site, however if the facilities for this are available it would be an advantage. However the candidate should know how to prepare the site for deployment and the how to find a suitable host that will support the technologies they have used.

Guidance on the delivery and assessment of this Unit

The purpose of this Unit is to develop the candidates' skills so that they can produce a valid dynamic data driven website within the 80 hours of the Unit.

In the delivery, candidates should have access to the centres chosen server side language facilities, propriety web development software, basic text editor for writing source code and internet access.

During the holistic project that covers the assessment for Outcomes 2, 3, and 4 the candidate must plan, design, implement and test in the correct order.

Higher National Unit specification: support notes (cont)

Unit title: Web Development: Dynamically Generated Content

A suggested delivery sequence to this Unit would be the following:

- ◆ Outcome 1 should be taught and assessed first so the candidate has the underpinning knowledge required for the remainder of the Unit
- ◆ Outcomes 3 will take the largest amount of time to deliver and should be started early on in the Unit.
- ◆ Outcome 2 can be delivered at any appropriate time
- ◆ Outcome 4 is probably best delivered when the candidate has the skills to build a complete dynamic data driven website

Outcome 1 assessment may be issued early on in the delivery of the Unit. The assessment should be conducted under closed-book conditions and as such candidates must not be allowed any text books, handouts, Internet access or notes in the assessment. This assessment should be completed within one hour.

Outcomes 2, 3, and 4 may be assessed using a holistic assessment in the form of a project that integrates each of these Outcomes. This assessment requires that the candidate be given a client brief. The brief should be detailed enough that the finished product meets the project brief and all the Evidence Requirements of Outcomes 2, 3, and 4.

Opportunities for developing Core Skills

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

Open learning

This Unit could be delivered by distance learning that may incorporate some degree of on-line support.

However it would require planning by the centre to ensure the sufficiency and authenticity of candidate's evidence. Agreements would have to be made to ensure the assessment for Outcome one is delivered in a supervised environment under controlled conditions.

Disabled candidates and/or those with additional support needs

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

General information for candidates

Unit title: Web Development: Dynamically Generated Web Content

This Unit is designed to teach you the underpinning knowledge required for dynamic data driven web application development and then gives you the opportunity to apply that knowledge when planning, designing and developing a dynamic web application with data driven content using a server side language.

You will learn about the types of web applications, various development languages, server configurations, databases and development environments that can be used for developing dynamic data driven web applications

You will learn how to plan and design a dynamic data driven website.

You will learn how to develop a dynamic data driven web site that involves web applications using a server side language and a data source. The server side language maybe one of PHP, ASP, ASP.NET, ColdFusion or JSP. You will be introduced to development through a framework or Integrated Development Environment as well as writing raw code. The IDE could be one of Visual Web Developer Studio or Dreamweaver/ColdFusion

Finally you will learn how to test and deploy a valid dynamic data driven website.

There will be two assessments in this Unit. Outcome 1 assessment made up of questions which need to be answered in class, under closed-book, supervised conditions. This assessment requires you to have an understanding of dynamic data driven web development and will include topics like Application Languages, Development Server Configurations, Frameworks/Integrated Development Environments(IDE), Databases and User Platforms. It will probably take about an hour to complete.

The other assessment will be a project in which you are required to actually plan, design, implement, test and deploy a dynamic data driven web application.

On completion of the Unit you should be able to:

- 1 Investigate dynamic data driven web development.
- 2 Plan and design a dynamic data driven website.
- 3 Implement a dynamic data driven website.
- 4 Test and deploy a dynamic data driven website.