

SQA Advanced Unit specification

General information

Unit title: Web Development: Essential Content (SCQF level 7)

Unit code: HT05 47

Superclass: CB

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Unit purpose

This Unit is designed to enable learners to gain knowledge and understanding of website development and apply that knowledge when planning, designing, developing, testing and uploading a website with static content to current and recognised standards.

The Unit is suitable for learners who have limited or no experience of web development.

Outcomes

On successful completion of the Unit the learner will be able to:

- 1 Describe website development fundamentals.
- 2 Plan and design a website.
- 3 Develop the layout and content of a website using a current version of HTML.
- 4 Develop CSS styles for a website.
- 5 Test and upload a valid, accessible website.

Credit points and level

2 SQA Credits at SCQF level 7: (16 SCQF credit points at SCQF level 7)

Recommended entry to the Unit

Access to this Unit will be at the discretion of the centre, however, learners should have knowledge of the internet and the different categories of websites available. A basic knowledge of a current mark-up language would be beneficial, but is not a requirement.

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Core Skills

Achievement of this Unit gives automatic certification of the following:

Complete Core Skill Problem Solving at SCQF level 6

Core Skill component None

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

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.

The Assessment Support Pack (ASP) for this Unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website (<http://www.sqa.org.uk/sqa/46233.2769.html>).

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.

Unit specification: Statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

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. Learners 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 website development fundamentals.

Knowledge and/or Skills

- ◆ Current web languages
- ◆ Current web browsers
- ◆ Current devices for displaying web pages
- ◆ HTML validation
- ◆ Website accessibility
- ◆ Search engine optimisation
- ◆ Website hosting

Outcome 2

Plan and design a website.

Knowledge and/or Skills

- ◆ Site specification
- ◆ Site structure
- ◆ Page layout
- ◆ Content organisation

Outcome 3

Develop the layout and content of a website using a current version of HTML.

Knowledge and/or Skills

- ◆ HTML structural elements
- ◆ HTML form elements
- ◆ HTML media elements
- ◆ HTML attributes
- ◆ Metadata

Outcome 4

Develop CSS styles for a website.

Knowledge and/or Skills

- ◆ Style guide
- ◆ Layout of website
- ◆ Presentation of website
- ◆ Responsiveness of website
- ◆ External and embedded stylesheets

Outcome 5

Test and upload a valid, accessible website.

Knowledge and/or Skills

- ◆ Validate
- ◆ Test
- ◆ Upload

Evidence Requirements for this Unit

Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills across all Outcomes.

The evidence for this Unit may be written or oral or a combination of these. Evidence may be captured, stored and presented in a range of media (including audio and video) and formats (analogue and digital). Particular consideration should be given to digital formats and the use of multimedia.

The Evidence Requirements for this Unit will take two forms:

- 1 Evidence of cognitive competence (Knowledge and Understanding) for Outcome 1.
- 2 Evidence of practical competence (practical abilities) for Outcomes 2–5.

For Outcome 1 candidates will be required to demonstrate that they will be able to:

- ◆ identify and describe current web languages and their appropriate uses
- ◆ identify and compare current web browsers used to display web pages
- ◆ identify and compare current devices used to display web pages
- ◆ describe reasons for carrying out HTML validation and the methods that can be used
- ◆ describe the importance of website accessibility and the steps that can be taken to make a website accessible
- ◆ describe the importance of search engine optimisation techniques and steps that can be taken to optimise a website
- ◆ compare the different types of webhosting available and the advantages and disadvantages of each

Sampling is permissible when the evidence for cognitive competence is produced by a test of knowledge and understanding. The test may take any form (including oral) but must be

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supervised, unseen and timed. The contents of the test must sample broadly and proportionately from the contents of the knowledge domain (see above). Access to reference material is not appropriate for this type of assessment.

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

The holistic assessment that integrates assessments for Outcomes 2, 3, 4 and 5 should take the form of a web development project. The assessment should be carried out over an extended period under open-book conditions; but where it is generated without supervision some means of authentication must be carried out.

The candidate should be provided with a realistic client brief which is sufficient enough to allow the candidate to interpret, plan, design, develop, test and publish a website adhering to current standards achieving all of the Evidence Requirements of Outcomes 2, 3, 4 and 5. Throughout the development all work must be organised and contained in a production folder.

Candidates will be required to demonstrate that they will be able to:

- ◆ Plan and design a website of at least five pages by producing:
 - a site specification
 - a site navigation map
 - page layouts
 - content organisation

- ◆ Develop the layout and content of a website using a current version of HTML, including the following:
 - the structure and content of a website of at least five pages
 - appropriate and current HTML structural elements
 - an HTML form that collects and validates data
 - appropriate and current HTML media elements
 - appropriate and current HTML attributes
 - appropriate metadata

- ◆ Develop CSS styles for a website, including the following:
 - create a style guide that specifies colour and typography
 - use stylesheets to control the layout of the website
 - use stylesheets to control the presentation of the website
 - use stylesheets to control the responsiveness of the website
 - use external and embedded stylesheets

- ◆ Test and upload a valid, accessible website, including the following:
 - remove all redundant code from the website
 - validate the HTML against the declared DTD
 - test the website for basic accessibility
 - test the functionality of the website
 - register a domain name and access a web host
 - upload the website to a web host
 - test the website on different browsers, log results and any actions required

The *Guidelines on Approaches to Assessment* (see the Support Notes section of this specification) provides specific examples of instruments of assessment.

Unit Support Notes

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Unit Support Notes are offered as guidance and 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 learners to develop knowledge, understanding and skills developing websites to recognised standards.

The Unit is at SCQF level 7 and the Unit has been revised as part of the SQA Advanced Certificate in Digital Design and Web Development, the SQA Advanced Diploma in Web Development and the SQA Advanced Diploma in Digital Design and Development awards, however, this does not preclude the use of this Unit in other awards where it is appropriate.

The list that is deemed important to cover in Outcome 1 is:

- ◆ The learner should be made aware of current client side web languages in use, and their role in client side web development. Typical client side web development languages for divergence and separation include HTML for structure and presentation, CSS for presentation and behaviour and JavaScript for behaviour. However the centre should explore this area and keep up-to-date with web language developments.
- ◆ The purpose of client side web scripting can be introduced, so that the learner can be made aware of why interactivity (behaviour) may be added to the client side of websites. Current examples could include form validation, cookies, alert messages, responsive design and feature detection. However the centre should explore this area and keep up-to-date with web language developments.
- ◆ The learner should be made aware of common and current platform and device compliant web browsers used to render web pages. These should include browser support for different devices, usage and features of these browsers. It may be worth exploring common and current browser incompatibilities. However the centre should explore this area and keep up-to-date with browser developments.
- ◆ The learner should be made aware of current devices used to display web pages such as computers, TV and mobile devices. The learner should be made aware of approaches to design for various devices and how this impacts on the user experience. However the centre should explore this area and keep up-to-date with device developments.
- ◆ The learner should be made aware of the importance of HTML validation standards. Important areas to cover could be deemed as; validation is useful for debugging code, future-proofing websites, providing quality checks, ease of code maintenance, teaching good practice and demonstrating professionalism. However the centre should explore this area and keep up-to-date with HTML validation developments.
- ◆ The learner should be made aware of the purpose and importance of website accessibility standards and accessibility approaches employed on websites. Important areas to cover could be deemed as accessibility legislation, inclusive practice and current accessibility guidelines. Current accessibility techniques include web page organisation, universal design patterns, alternative content, meaningful

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descriptions and assistive technologies. However the centre should explore this area and keep up-to-date with accessibility developments.

- ◆ The learner should be made aware of the importance of basic SEO techniques and how to incorporate these techniques as part of the web development life cycle. Application of SEO techniques to webpages could consider the correct use of heading tags, alt tags, file and folder naming conventions, keywords and key phrases, use of grammar, spelling, relevant content and appropriate page titles. The learner also should be made aware of the impact SEO techniques have on the user experience and the usability of a website. The impact of social media should be introduced and the influence SEO techniques have on SERP's and website traffic.
- ◆ The learner should be made aware of the purpose of website hosting, types of website hosting such as free, cloud, shared, private, dedicated and feature support for websites such as server side languages and CMS, File Transfer Protocol, domain naming and domain registration. The learner should be able to identify the difference in web hosting packages and the advantages and disadvantages of each. However the centre should explore this area and keep up-to-date with website hosting developments.

Outcome 2 is intended to give the learner Knowledge and/or Skills on the first steps to take after receiving a client brief. The importance of this planning and design stage should be stressed.

It is intended that the site specification include the goal and purpose of the site, the information, products and services the site will offer, the functions that are crucial for the site to be successful and any other functionality, who the target audience is, who maintains the site and what technical considerations must be considered.

The design of the website structure can be achieved using methods such as flow charts, navigation map or mind maps. The content of the pages including the navigation design can be included within storyboards, wireframes or page content summary sheets. It is envisaged that the learner may have undertaken a Unit which includes some graphic design and page design principles, so the content summary or storyboards should give an indication of colour, layout, balance and fonts for the website. Content organisation within the page layouts should evidence how the information will be structured and displayed on the website and should consider current basic on-page SEO techniques. This may be evidenced in the page layout stage of planning. The learners may have already undertaken a design composition Unit which explores design principles. In this case the learner would be expected to apply basic design principles to their web page layouts.

Outcome 3 is intended to give the learner skills in the chosen mark-up language. As there are no pre-entry skill required, it is envisaged that the language be introduced from the first principles. To get the best out of this Unit students are expected to employ hand coding practices. A propriety package may be used for this, as may an HTML editor, however, if a propriety package is used, it is advisable to focus the learners on the source code. At the end of delivery of this Outcome, the learner should be able to use a range of common and current HTML tags. Centre discretion should decide which HTML tags are deemed appropriate to achieve this learning Outcome.

Structural HTML elements – Current examples of these are <p>, <hr>, <header>, <footer>, <html>, <head><body>, <title>, <article>, <section>, <aside>, <h1...h6>, , , , <form>, <table>, <tr>, <td>, <div>, , <a>, <nav>, . The learner should attempt to avoid using HTML tags for presentation when CSS would be the preferred option. The learner must also choose the current doctype when declaring their document.

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HTML form elements — Current examples of these are <form>, <input>, <select>, <button>, <fieldset>, <label>, <legend>, <option>, <textarea>. These HTML form elements should be explored further at the time of delivery and evidence should be gathered within the context of the project. HTML form attributes can be also used to provide basic form validation. If the centre wishes to explore form validation further then a client side language may be introduced. In all instances the learner should be made aware of the vulnerability of using HTML to validate form data.

HTML media elements — Current examples of these are <audio>, <embed>, <source>, <track>, <video>. It would be expected that at least one appropriate and functional HTML media element is included.

HTML attributes — Current examples of these are href, src, alt, title, id, disabled, class required. The learner should avoid the use of attributes such as width and height and consider CSS instead. HTML attributes should be explored further at the time of delivery and expected evidence should be gathered within the context of the project.

HTML metadata — Current examples of these are description, content, author, name, charset, http-equiv, refresh, property. These HTML metatags should be explored further at the time of delivery and evidence should be gathered within the context of the project. The learner should be aware of the significance of metadata in relation to website SEO techniques.

Learners should also consider basic on-page SEO techniques such as the correct use of heading tags, alt tags, file and folder naming conventions, keywords and key phrases, use of grammar, spelling, metadata, relevant content and appropriate page titles. It is not deemed important to cover all of these techniques however the learner should have a basic understanding of on-page SEO techniques which can be delivered within the teaching of HTML.

The aim of Outcome 4 is to develop skills in the use of CSS to define styles for web pages, including design, layout, variations in display for different devices and screen sizes and to apply visual consistency to web pages. The use of external stylesheets should be encouraged and their advantages highlighted to learners, however the learner will be able to apply styles by linking and embedding methods. The learner must explore responsive web design and show evidence that they can limit the scope of elements by changing styles based on the characteristics of the device rendering the content. By the end of delivery of this Outcome, the learner should be able to use at least the following CSS properties: background, text, font, border, padding, size and positioning. The centre should decide what is appropriate in this instance. It may be that only partial responsiveness is required to be developed. This may be the case where a responsive framework has been used. If a responsive framework is not used then the centre should decide what level of responsiveness the learner should evidence within their website.

Outcome 5 is about providing the learner with the knowledge and skills to validate, test and upload an accessible website. The learner should be able to validate a website to W3C standards as declared in the website DTD. The learner should be made aware of the simple steps to take to give the website basic accessibility, eg giving all images and media element alternative text, appropriate and recognised background/foreground colour combinations, by making all text resizable, eliminate or limit the inclusion of third party plugins, focus control and by using tables only when really required. Learners should explore options on how to register a domain name and access a web host to suit the needs of the brief and then uploading the site.

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Glossary of Terms:

HTML	Hypertext Mark-up Language
CSS	Cascading Style Sheet
DTD	Document Type Definition
SEO	Search Engine Optimisation
SERP	Search engine results page

Guidance on approaches to delivery of this Unit

The purpose of this Unit is to develop the learners' skills so that they can produce a valid functional website within the 80 hours of the Unit.

In the delivery, learners should have access to propriety web development software, basic text editor for writing source code and internet access, for referencing, registering and uploading websites.

During the holistic project that covers the assessment for Outcomes 2, 3, 4 and 5 the learner must plan, design and develop in the correct order.

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

- ◆ Outcome 1 should be taught and assessed first so the learner has the underpinning knowledge required for the remainder of the Unit.
- ◆ Outcomes 3 and 4 may be taught in parallel so the learner relates the structuring with the styling of websites.
- ◆ Outcome 2 can be delivered when the learner has enough understanding of the development of a website.
- ◆ Outcome 5 is probably best delivered when the learner has the skills to build a complete 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 learners 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, 4 and 5 may be assessed using a holistic assessment in the form of a project that integrates each of these Outcomes. This assessment requires that the learner be given a project brief from a real client or issued one from the assessor. The brief should be detailed enough that the finished product meets the project brief and all the Evidence Requirements of Outcomes 2, 3, 4 and 5.

Current examples of free online resources include:

<http://www.w3schools.com/>
<https://www.codecademy.com/>
<https://www.webcodegeeks.com/>

Current examples of free HTML editors include:

<https://www.sublimetext.com/>
<http://brackets.io/>
<http://www.apptana.com/>

Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to candidates.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

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:

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 basic website development fundamentals.

Evidence for this Outcome could be assessed using a representative sample of 20 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.

Outcomes 2, 3, 4 and 5 are open-book assessment and should take the form of a practical assessment carried out under supervised conditions to demonstrate the candidate's Knowledge and/or Skills across these Outcomes.

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

It is recommended that this assessment is based around a theme. Learners 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.

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

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

Opportunities for 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 learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at www.sqa.org.uk/e-assessment.

Opportunities for developing Core and other essential skills

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

This Unit has the Core Skill of Problem Solving embedded in it, so when learners achieve this Unit their Core Skills profile will be updated to show that they have achieved Problem Solving at SCQF level 6.

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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 learners

Unit title: Web Development: Essential Content (SCQF level 7)

This section will help you decide whether this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and opportunities for further learning and employment.

This Unit is designed to introduce you on how to plan, design, develop and publish a website with static content to recognised standards.

You will learn the importance of web standards (www.w3c.org), how to produce webpages using a mark-up language and incorporate them into a website, and how to create stylesheets and implement these in the development of a website.

You will learn the development stages involved in the creation of a website, from receiving a client brief to actually uploading the website to a web server. These stages include the planning, design, development and testing so that the finished website is valid to recognised standards and has basic accessibility to make it comply with current legislation.

Outcome 1 assessment is 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 the main web development fundamentals. It will probably take about an hour to complete.

The other assessment, or assessments, will be a project in which you are required to actually plan, design, develop, test and publish a website from a client brief.

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

This Unit has the Core Skill of Problem Solving embedded in it, so when you achieve this Unit your Core Skills profile will be updated to show that you have achieved Problem Solving at SCQF level 6.