

# Unit 17: Website Development

**Unit code:** A/601/3245

**QCF Level 2:** BTEC First

**Credit value:** 10

**Guided learning hours:** 60

## ● Aim and purpose

The aim of this unit is to give learners a knowledge of how websites function and an understanding of their purpose as business tools. Learners will then gain develop the skills required to design and create a multiple page website.

## ● Unit introduction

The worldwide web has given rise to a new medium of communication. Websites can allow us to 'walk into' a world with very few boundaries. We can find MP3 files and download them with ease. Our digital images can be sent to relatives overseas in seconds. We can go shopping without leaving our homes and source the very best prices with the click of a mouse button.

Essential to developing the worldwide web are the people who design effective documents that can be 'read' by a web browser. Web designers have the fascinating task of taking text, images, video and other resources and crafting them into high quality documents for broadcasting across the world via the internet. Their brief is to produce attractive and informative sites that are accessible to everyone. This includes users with disabilities, where, for example, features can allow speech synthesisers to read out pages for blind users. In this unit learners see the potential of the web and will develop a skill set which will be highly valued by industry and commerce as well as being a useful personal skill for leisure pursuits. Web design is a skill that is becoming more and more popular as the worldwide web expands and as companies see the advantage of using browser technology for their company intranets. The unit provides a firm grounding in the concepts of web design which will help learners to progress to employment or to another educational course and to become valued employees with the key skills needed in their chosen employment.

## ● Learning outcomes

**On completion of this unit a learner should:**

- 1 Know web architecture and components
- 2 Understand how websites can be used by organisations
- 3 Be able to design website components
- 4 Be able to create website components.

# Unit content

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## 1 Know web architecture and components

*Components:* hardware eg web, mail and proxy servers; routers; software eg browser, email

*Web architecture:* Internet Service Providers (ISP); web hosting services; domain structure; domain name registrars; worldwide web

*Web functionality:* Web 2.0; blogs; online applications

## 2 Understand how websites can be used by organisations

*Uses of websites:* customer-facing eg marketing, online product catalogue, business information; internal eg intranets, information repositories, training facilities

## 3 Be able to design website components

*Design:* tools eg storyboards, sample pages; style eg layout, corporate image, use of logos

*Construction features:* frames, templates, action buttons; hyperlinks, visited hyperlinks; hotspots; download speeds eg affected by browser, memory size of pages; interactive features eg email links, registration login

*Interactivity:* user input eg keyboard, mouse clicks; form design

*Client need:* target audience; user need eg clear navigation, fast download speeds; language, images, appropriate formats eg layout, colour, font

## 4 Be able to create website components

*Format and edit:* common web functions eg bookmarks, hyperlinks, graphics, fonts, text formatting, background colours, images; simple HTML eg editor programs, file extensions; HTML tags eg <html>, <p>, <body>, closing tags; editing tools, formatting tools

*Combining information:* different sources eg scanner, digital camera, application packages, original artwork, clip art

*Checking:* image resolution; colours; links not working; inappropriate content; text; formatting

*Publishing:* uploading files eg to intranet, to local server; maintaining contents; file management eg naming files, folder structures, moving files, deleting files

*Web development software:* specialist software eg Expression Web, Dreamweaver; embedded facility in other packages eg Word; other eg Flash; use of HTML; wizards

*Automated features:* wizards eg tables, frames, templates

*Review:* feedback eg appropriateness, unnecessary animation, inappropriate graphics, unclear graphics, inappropriate content, slow download speeds, navigation problems, bad font choice, bad colour combinations; improvements eg response times, interactivity, clarity

## Assessment and grading criteria

In order to pass this unit, the evidence that the learners present for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
<b>P1</b> identify the hardware and software components which enable internet and web functionality		
<b>P2</b> describe the role of web architecture in website communications		
<b>P3</b> explain the uses of websites in organisations		
<b>P4</b> design website components, considering client needs [CT1, CT2, CT6, TW2]	<b>M1</b> explain the techniques that can be used on web pages to aid user access to information [RL6]	<b>D1</b> evaluate different design features of a website [IE4]
<b>P5</b> use appropriate formatting tools, styles and templates to prepare content for the website [CT1, CT6]	<b>M2</b> describe the use of interactive websites and what techniques can be used to provide interactivity	
<b>P6</b> create website components to meet client needs [CT1, CT6]	<b>M3</b> use automated features in web development software [CT1, CT6]	
<b>P7</b> review website components, suggesting improvements. [EP4]	<b>M4</b> refine website components based on user feedback. [CT1, CT6, RL4]	<b>D2</b> explain how a created website meets the defined requirements. [IE6]

**PLTS:** This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills applicable in the pass criteria. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

# Essential guidance for tutors

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## Delivery

There is scope in this unit for learners to be creative and this should be encouraged. It is relatively easy to develop working websites using dedicated application packages and wizards but it is not easy to ensure that the finished website meets the intended purpose and, in particular, the needs of the expected audience. Delivery strategies should be developed accordingly. If learners are to develop professional websites, then they must be fully aware of the relevant laws and guidelines and the practical implications of the legislation.

When researching websites in the early stages, it is recommended that learners' investigations are structured according to the internal and external uses as identified in the content. It would be valuable to present learners with a structured format for these investigations that covered the relevant content. As learners experience different types of websites they should be encouraged to compare and contrast in order to reflect on what constitutes good practice in the world of web design.

Early emphasis on reviewing existing websites for fitness of purpose will enable learners to develop a critical eye that should aid in their designs and implementations.

It is possible that some learners have already produced web pages and feel confident that they do not need instruction. Given the increasing competition for attention on the web, sites must be interesting and informative enough to capture users effectively. This can be achieved only by good design and the delivery sessions must emphasise this. There is not a standard design methodology but paper-based designs that show the intended house style and structure need to be justified and critical formative assessment should question details such as why particular fonts are used. Design documentation could include the use of pictorial representations illustrating the overall website design, individual page layouts and notes on navigation. Issues such as the choice of font and layout are important and learners should be encouraged, through the use of appropriate support materials, to understand the aesthetic and image considerations of their work.

The practical workshop activity should not be wholly focused on the production of the website that will be submitted for assessment. Small developmental activities that cover the content and ensure learners are confident on a wide variety of techniques are recommended and these might involve other technologies such as digital cameras, creating thumbnails, animated GIFs, sound recording, etc. The content requires that learners edit HTML, and so some aspects of HTML will need formal teaching. Learners could be taught with examples of lines that have been produced in the package used and gain skills developed through small practicals that build confidence in a number of specific techniques. Time spent on the production of the website submitted for assessment purposes should be limited and candidates directed to focus on a site that covers all of the required content, rather than a large and complex site with duplicated features.

The content of this qualification maps very closely to the National Occupational Standards (NOS) and this will allow centres to consider joint delivery with learners who are following NVQ or Modern Apprenticeship programmes. For details of which areas of the NOS are covered in this unit see the 'links' section below, while for details of what is meant by the term 'Realistic Working Environment', please refer to the NVQ Centre Guidance (on the Edexcel website).

## Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan demonstrates one way in planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and assessment
<b>Introduction to the unit</b>
The purpose of websites: <ul style="list-style-type: none"><li>• whole-class exercise – tutor presentation on the purpose of websites</li><li>• directed research – understanding client needs.</li></ul>
<b>Assignment 1 – Exploring Websites</b>
Principles of a multi-page website: <ul style="list-style-type: none"><li>• whole-class exercise – tutor presentation on the different construction features of websites</li><li>• individual exercise – learners practise with web design tools.</li></ul>
<b>Assignment 2 – Create a Website</b>
Publishing a multi-page website: <ul style="list-style-type: none"><li>• individual exercise – learners investigate different web development packages</li><li>• individual exercise – learning basic HTML</li><li>• individual exercise – learners investigate testing a website for functional navigation and content coherence.</li></ul>
<b>Assignment 3 – Testing and Maintenance</b>

## Assessment

In preparing to assess this unit, it is advised that tutors give learners strict parameters for carrying out research using the internet, making a range of sites available via an intranet or links to a range of suitable websites with appropriate content for their level of maturity and experience which will allow them to consider a range of different design styles. As much of the evidence is related to website review and production, this may be provided in any suitable medium, as long as it can be made available remotely to an external verifier if required. Practical activities must be accompanied by observation records or witness statements, but this should not usually be the only form of evidence for an individual criterion. Guidance on the use of observation records and witness statements is provided on the Edexcel website.

To achieve a pass grade, learners must achieve the eight pass criteria listed in the assessment and grading criteria grid.

For P1, learners must be able to identify clearly the hardware and software components which are used to connect to the internet securely, and which facilitate communication and representation of information for users.

P2 follows on from P1 by asking learners to describe the role of web architecture. As specified by the content, learners should be describing ISPs, web hosting and domain name registrars as fundamental aspects of the architecture behind the worldwide web.

For P3, learners should consider the main functions of websites, including the latest developments in online practices.

Descriptions of live business websites may be used to explore the different uses of websites in organisations. Learners should explain how organisations use websites and intranets to improve productivity, efficiency and

gain revenue.

For P4, learners should be given an appropriate scenario from which to design a website components, considering the needs of the client.

For P5, learners must complete the practical task of using formatting tools, styles and templates to prepare content for a website. Whilst it is not stated in the grading criteria, it would obviously be useful if this criterion is used as a follow-on from the previous ones. In line with this, the content could be produced in accordance with the points considered in P2 and P3.

For P6, learners should show that they can publish web components on a web server so that it can be viewed over the internet.

For P7, learners should review the website uploaded for P7 to ensure that all aspects of it are working correctly. Learners must be seen to go through the website, testing it methodically to ensure that there are no errors in its navigation or content. Evidence can come from a mix of tutor observation and learner-completed documentation.

To achieve a merit grade learners must achieve all the pass criteria and the four merit criteria.

M1 focuses on explaining the techniques designers use on web pages to aid user access to information. This can be treated as an extension of P5, and carried out as part of the same assignment.

For M2, a website that engages with user input is necessary, such as one that collects names and addresses for registrations or mailshots. Typically, the additional functionality needed would involve the use of a front end data capture form with some validation database to store the user input.

For M3, learners should use automated features such as automatic frames and wizards to create web components. Learners should not be introduced to these features until they have an understanding of how to generate the same components manually.

For M4, a number (chosen by the tutor) of websites must be reviewed in order to identify and explain suggested improvements. Websites created by learners in P6 may be included for peer or self-review and suggestions may include improving usability, extending content, graphics or functionality (such as improving download or page loading speeds).

To achieve a distinction grade, learners must achieve all the pass and merit criteria and the distinction criteria.

For D1, evidence could be linked to the website components created for P6 and the evaluation should cover all the features listed in the unit content. Suitable forms of evidence could include annotated screenshots, included in a written report or a visual presentation.

For D2, learners should give a detailed explanation of the ways in which the finished product meets the original user requirements. This could take the form of a short report on the websites successes and also relate areas for further improvement.

## Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, P3, P4, M1, D1	Exploring Websites	A small firm has asked you to research competitor websites.	Report
P5, P6, P7, M2, D2	Create a Website	The firm asks you to propose and create a website.	Practical exercise Presentation
M3	Testing and Maintenance	Test the website to ensure that there are no problems with navigation or content. Suggest how it can be extended further.	Written report

## Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

The knowledge and skills found in this unit map directly to the knowledge, understanding and skills of the following area of competence:

- Website Software – all underpinning knowledge and skills (NVQ IT Users)

and if it is assessed in a 'realistic working environment' as detailed in the appropriate NVQ Centre Guidance Documents then successful completion of this unit will be accepted through the Accreditation of Prior Achievement guidelines as units of the appropriate NVQ.

This unit forms part of the BTEC in IT sector suite. This unit has particular links with the following unit titles in the IT suite:

Level 1	Level 2	Level 3
		Unit 28: Website Production

This unit maps to some of the underpinning knowledge from the following areas of competence in the Level 2 National Occupational Standards for IT (ProCom):

- 6.1 Information Management

## Essential resources

Access to an internet connection is essential for this unit so learners are able to review sample websites and, later in the course, upload their websites to a server.

All learners should have access to a PC with the following application software:

- authoring software
- web browser.

Where possible it is recommended that learners use a web authoring system to create their pages. This will maximise their productivity and leave more time for researching and applying good design techniques. Whilst it is possible to use a text-based editor such as Windows Notepad to write the HTML coding, this can be laborious and the overall benefit to the learner is questionable. However, HTML code should be discussed as part of the unit so that learners have an understanding of its place in the process of web design.

There are various web authoring packages available. For example, Microsoft Front Page, Adobe Dreamweaver, all make website production a fairly intuitive task. In addition, Netscape Navigator includes Composer which enables the user to create web pages directly from within the browser.

Ideally, learners should produce websites that look 'authoring tool independent'. The emphasis in this unit is on learners using a range of tools to complete their sites. They should be able to adjust background colours, use background images, apply text formatting/colours, bullets, etc. Tools that complete multiple actions by the click of a button should be discouraged, for example the use of themes to build comprehensive websites.

## Employer engagement and vocational contexts

The use of vocational context is essential in the delivery and assessment of this unit. Learners will require access to computer equipment to enable them to gain a practical awareness and enable them to apply their knowledge and understanding in a practical situation.

There is a range of organisations that may be able to help to centres engage and involve local employers in the delivery of this unit, for example:

- Learning and Skills Network – [www.vocationallearning.org.uk](http://www.vocationallearning.org.uk)
- Local, regional business links – [www.businesslink.gov.uk](http://www.businesslink.gov.uk)
- National Education and Business Partnership Network – [www.nebpn.org](http://www.nebpn.org)
- Network for Science, Technology, Engineering and Maths Network Ambassadors Scheme – [www.stemnet.org.uk](http://www.stemnet.org.uk)
- Work-based learning guidance – [www.aimhighersw.ac.uk/wbl.htm](http://www.aimhighersw.ac.uk/wbl.htm)
- Work Experience/Workplace learning frameworks – Centre for Education and Industry (CEI University of Warwick) – [www.warwick.ac.uk/wie/cei](http://www.warwick.ac.uk/wie/cei).

## Indicative reading for learners

### Textbooks

Adobe Creative Team – *Adobe Dreamweaver CS4 Classroom in a Book* (Adobe, 2008) ISBN 0321573811

Brannan James A – *Web Design in Simple Steps* (Prentice Hall, 2009) ISBN 0273723537

Cheshire Jim – *Microsoft Expression Web 3 In Depth* (QUE, 2009) ISBN 078973981X

### Websites

- |  |   |
|--|---|
| <a href="http://www.excellentsite.org">www.excellentsite.org</a>       | This will give learners a good start in choosing appropriate design criteria                                    |
| <a href="http://www.webpagesthatsuck.com">www.webpagesthatsuck.com</a> | According to the site's creator, Vincent Flanders, the reader will 'learn good design by looking at bad design' |



## Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are ...
<b>Creative thinkers</b>	generating ideas and exploring possibilities when design and creating website components to meet client needs  asking questions to extend their thinking when considering clients' needs and adapting ideas as circumstances change  generating ideas and exploring possibilities when using appropriate formatting tools, styles and templates to prepare content for the website, and adapting ideas as circumstances change
<b>Team workers</b>	reaching agreements and managing discussions with clients to achieve results
<b>Effective participators</b>	identifying improvements when reviewing website components.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
<b>Independent enquirers</b>	analysing and evaluating different design features on a website, judging its relevance and value  supporting conclusions when explaining how a created website meets the defined requirements, using reasoned arguments and evidence
<b>Reflective learners</b>	communicating the techniques designers use on web pages to aid user access to information in relevant ways for different audiences
<b>Creative thinkers</b>	generating ideas and exploring possibilities when using automated features in web development software, and adapting ideas as circumstances change  generating ideas and exploring possibilities when refining website components based on inviting feedback from users, and adapting ideas as circumstances change.

## ● Functional Skills – Level 2

Skill	When learners are ...
<b>ICT – Using ICT</b>	
Select, interact with and use ICT systems safely and securely for a complex task in non-routine and unfamiliar contexts	outlining the production of a multi-page website, considering client needs
Combine and present information in ways that are fit for purpose and audience	publishing a website using web development software
Evaluate the selection, use and effectiveness of ICT tools and facilities used to present information	evaluating the use of HTML in website creation, as opposed to only using wizards to generate web pages.