

Unit 14: Website Design

Unit code: J/601/1286

QCF Level 4: BTEC Higher National

Credit value: 15

- **Aim**

To enable learners to understand the concepts of website design and apply their own creativity in designing and developing interactive websites.

- **Unit abstract**

The internet is perhaps the most important IT development of the last few decades; it provides new ways to communicate and share information. It has also revolutionised the way people and businesses use IT.

Businesses can now take part in a global marketplace, widening their scope for potential customers, all from a local base and with relatively low start-up costs.

The need for good web designers and developers continues to grow as more and more companies realise they must develop a web presence and keep it maintained and updated.

As web technologies develop, there is an increasing need for websites to be interactive. This allows two-way communication between the user and the website.

The number of websites on the world wide web has increased dramatically and competition is very fierce. This means that designers must employ increasingly sophisticated techniques to capture interest, as well as ensuring that an appropriate company image is presented. Usability issues, such as navigation methods, must be considered carefully. A poorly-designed structure could result in users becoming confused or frustrated and navigating away from the website.

Learners will begin this unit by evaluating existing websites, in the context of cross-platforms, range of browsers, and design features. Designing websites, which are accessible to all types of users is a fundamental aspect of any website design.

This unit also considers the whole process from identification of need, design, implementation, testing, maintenance and review. It is important that learners do not just develop skills in specific techniques but are also able to select when and where they are most appropriate, basing this decision on client and user needs. As with any field of IT, a comprehensive understanding of the relevant legislation and guidelines is always fundamental.

● **Learning outcomes**

On successful completion of this unit a learner will:

- 1 Understand website design concepts
- 2 Be able to design interactive websites
- 3 Be able to implement interactive websites
- 4 Be able to test interactive websites.

Unit content

1 Understand website design concepts

Users: types eg expert, regular, occasional, novice, special needs; requirements eg psychological, cultural, social and environmental, health and safety, education and work

Site analysis: purpose eg communication, real-time information, commercial, government, education, business, entertainment, downloading/uploading, web storage; fit for purpose eg meets organisational and site objectives; planning eg storyboarding, structure, hypermedia linkage, search engine key words, graphical design, user interface, audio/video sources, animation, text design; maintenance eg plans, logs, disaster recovery, testing

Accessibility: features eg alternative text, resizable fonts, support for screen readers, adjustable fonts; current standards and legislation eg Disability Discrimination Act, Data Protection Act, e-Commerce Regulations Act, Computer Misuse Act, W3C validation, copyright and intellectual property rights

Design: rules and heuristics for good website design; accessibility; functionality eg timings, navigation, ease of use, user-friendliness; evaluation tools eg W3C Mark-up Validation Service

Environment: features eg Uniform Resource Locators (URL), Hypertext Mark-up Language (HTML), Dynamic Hypertext Mark-up Language (DHTML), Extensible Mark-up Language (XML), JavaScript, Java Applets, plug-ins, client and server-side scripting languages; multimedia eg animation, sound/visual effects; hardware and software requirements eg computer platforms, operating systems, application software; browser behaviour eg execute scripting languages, display Cascading Style Sheets (CSS), applets, Common Gateway Interface (CGI)

2 Be able to design interactive websites

Identification of need: nature of interactivity eg online transactions, static versus dynamic; client needs and user needs eg image, level of security, development timescales, maintenance contracts, costs, search engine visibility; end user need eg appropriateness of graphics, complexity of site, delivery of content

Design tools: concept designs eg mood boards, story boards; layout techniques eg frames, tables, block level containers, inline containers; templates; colour schemes; screen designs

3 Be able to implement interactive websites

Structure: layout of pages; navigation; format of content; Cascading Style Sheets (CSS); page elements, eg headings, rules, frames, buttons, text and list boxes, hyperlinks/anchors, graphical images, clickable images/maps; interactive features eg product catalogue, shopping cart; images and animation

Content: correct and appropriate; reliability of information source; structured for purpose eg prose, bullets, tables

Development: mark-up languages eg (HTML), (XHTML), (DHTML); client side scripting languages eg JavaScript, Visual Basic (VB) script; features and advantages of software languages; web authoring software tools

Tools and techniques: navigation diagram eg linear, hierarchy or matrix; building interactivity tools eg pseudo-code for client-server scripting; adding animation and audio/visual elements; ensuring compliance with W3C; meta-tagging; cascading style sheets

4 Be able to test interactive websites

Review: functionality testing (user environments, links and navigation); content; check user requirements; user acceptance; audit trail of changes

Mechanisms: types eg browser compatibility testing, platform testing, script-language testing; valid (HTML) code; checking functionality against requirements, check internal and external hyperlinks (web files, web documents, images), error detection, error messages, dry running

Supportive documentation: test plan; test results; programmer guidance; user guidance: on-screen help

Learning outcomes and assessment criteria

Learning outcomes On successful completion of this unit a learner will:	Assessment criteria for pass The learner can:
LO1 Understand website design concepts	1.1 discuss the design concepts that have to be considered when designing a website
LO2 Be able to design interactive websites	2.1 design an interactive website to meet given requirements 2.2 evaluate website design with other users.
LO3 Be able to implement interactive websites	3.1 implement a fully-functional interactive website using a design specification.
LO4 Be able to test interactive websites	4.1 critically review and test the website 4.2 analyse actual test results against expected results to identify discrepancies 4.3 evaluate independent feedback and make recommendations for improvements 4.4 create onscreen help to assist the users 4.5 create documentation for the support and maintenance of the website.

Guidance

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

The learning outcomes associated with this unit are closely linked with:

Level 3	Level 4	Level 5
Unit 20: Client-side Customisation of Web Pages	Unit 13: Multimedia Design and Authoring	Unit 35: Web Applications Development
Unit 27: Web Server Scripting	Unit 15: Website Management	
Unit 28: Website Production		

This unit has links to the Level 4 and Level 5 National Occupational Standards for IT and Telecoms Professionals, particularly the areas of competence of:

- Human Computer Interaction/Interface (HCI) Design
- IT/Technology Infrastructure Design and Planning
- Software Development.

Essential requirements

Learners must have access to facilities which will give them the opportunity to fully evidence all of the criteria in the unit.

Learners must evaluate a range of different websites, particularly focusing on design. Learners must be encouraged to identify strengths and weaknesses in the design, and discuss what methods they would use to improve the website. This will of course be taking into account accessibility, relevant legislation, usability, functionality, user friendliness, interface design, etc.

Legislation and accessibility are fundamental aspects of website design. Learners must be made aware of the range of legislation and standards, which have an impact on website design. Learners must understand the importance of legislation.

Learners must design and develop their own website. There are many different approaches to website design, all of which demonstrates how a website will be developed, what features and functions it will contain, the appearance, etc. Learners must be able to show that they can apply design skills first before developing a website.

Learners must have access to computing facilities, and web authoring tools to support them with the practical aspects of this unit. Learners must be given a range of activities with plenty of support, which will enable them to create HTML web pages. Further activities must be provided that will allow learners to embed a range of web functions, such as hyperlinks, tables, frames, colour, images, audio, video, etc. Learners must include client-side scripting such as JavaScript.

Evaluation and review continues to be an important theme of this unit, and learners must be encouraged to evaluate their work throughout the entire development process. Thorough testing must be performed on their website, to ensure that it is fit for purpose and meets the requirements/specification. Appropriate testing documentation must be used as a method of capturing test data, and demonstrating relevant testing.

Resources

Books

McFarland D – *CSS: The Missing Manual, second edition* (Pogue Press, 2009) ISBN 9780596802448

McFarland D – *Dreamweaver CS4: The Missing Manual* (Pogue Press, 2009) ISBN 9780596522926

McFarland D – *JavaScript: The Missing Manual*, first edition (Pogue Press, 2008)
ISBN 9780596515898

Veer E – *Flash CS3: The Missing Manual* (Pogue Press, 2007) ISBN 9780596510442

Websites

www.thebestdesigns.com/

www.w3.org

www.w3schools.com

www.webdesignfromscratch.com/articles-and-tutorials/

Employer engagement and vocational contexts

Working with a local web design/development-based organisation or using internet-based open source projects would enhance the learners' experience and offer a relevant vocational context.