Unit 44: Website Design

Unit code: L/502/4983

QCF Level 3: BTEC National

Credit value: 10

Guided learning hours: 60

Aim and purpose

This unit aims to give learners the opportunity to develop the skills, knowledge and understanding needed to design effective and creative websites.

Unit introduction

Web design skills are highly sought after as governments, industries, businesses and individuals are becoming ever more reliant on this medium as a form of communication. The continuous advancement of new technologies is enabling rapid developments of innovative ways to communicate, order and present information, including visuals and texts through video and audio media, with web design an exciting and key element of this expansion. Audiences are becoming increasingly proficient in navigating, accessing and sharing information and adapting to new technologies. It is important that artists and designers embrace new technology and new forms of accessing the internet and develop skills, knowledge and understanding in order to communicate ideas effectively in a highly competitive and progressive sector.

Learners will develop their understanding of how design, technology and accessibility are used in the web design industry. They will also develop an understanding of the potential benefits of using relevant technologies to communicate information on screen. Content, coding, formats and modes of delivery and accessibility will be explored. Learners will address system platforms, browsers and displays. It is expected that web technologies and use of equipment will be taught as a foundation on which to build understanding, creativity and skills.

Learners will be given specific themes and/or assignment briefs to focus their work and guide them through investigations and experimentation with hardware and software. Briefs will be designed within a relevant vocational context and take into consideration new industrial developments in computer hardware and software technology. These skills will help learners' progress and adapt to a vocational environment where web design plays an increasingly important role.

Learning outcomes

On completion of this unit a learner should:

1 Know about website design technologies

2 Understand website design issues

3 Be able to produce interactive web pages to a given theme or assignment brief

4 Be able to review own website design work.

Unit content

1 Know about website design technologies

Website design: applications eg web browsers, worldwide web, Uniform Resource Locator (URL); configuration eg content, layout, structure, appearance, general preferences, editor preferences, history, defaults, reload, download, upload, cookies, bookmarks; servers eg local, remote, file sharing; web applications eg email, file sharing, ecommerce, voice over internet protocol (VOIP)

Technologies: functions; features; user enhancement; current technologies eg HyperText Markup Language (HTML), Extensible HTML (XHTML), Dynamic HTML (DHTML), Cookies, JavaScript, Perl, ASP, Java, client side interactive scripts, server side scripts, database driven web pages; publishing eg File Transfer Protocol (FTP); content control eg Cascading Style Sheets (CSS); animation eg Flash (FLV, SWF)

2 Understand website design issues

Website design issues: effectiveness eg purpose, fitness for purpose, aesthetic qualities; content eg web-safe colours, image formats, font families, speakers and audio; layout eg HTML, tables, layers, CSS; readability, content, accessibility eg colours, navigation, target audience, fonts, aesthetic qualities, image formats, layout, backgrounds, size, scrolling; Human Computer Interaction (HCI); platforms; web browsers; downloading eg modem, broadband, speed, economy, memory; client side constraints eg hardware, software, monitor resolution, size, memory, internet connection; plug-ins eg video player, SWF player, Shockwave player, audio player

3 Be able to produce interactive web pages to a given theme or assignment brief

Interactive web pages: HTML eg tables, text, font, colour, layers, frames, body, links, anchors; edit, modify, insert code; format with CSS; hardware; software; computers; hardware devices eg desktop, laptop, mobile telephone, Personal Digital Assistant (PDA), gaming device, digital camera, scanner; backup eg internal, external, storage devices; webpage design software; webpage publishing software; content development software eg image manipulation, SWF, 3D, video, Shockwave and audio; content; text; images eg JPEG, GIF, animated GIF, PNG; interactive; advanced content eg DHTML, Javascript, Shockwave, Image maps, Slices, SWF, audio, video, database; conventions eg World Wide Web Consortium (W3C), Web Content Accessibility Guidelines (WCAG)

4 Be able to review own website design work

Review: effectiveness eg fitness for purpose, relevance, target audience, clarity; accessibility eg audiences, ages, abilities; vocational application; relevance eg navigation format, content; language; technology; hardware; software; constraints; interaction; potential

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents 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:**
P1 describe relevant web technologies [IE, RL, EP, SM, TW]	**M1** demonstrate creative and technical decision making through purposeful investigation and considered analysis of diverse web technologies and associated issues	**D1** show independence in using understanding of website technology and design issues to create and present imaginative and fully functional web pages.
P2 review website design issues [IE, CT, RL, SM]	**M2** produce coherent interactive web pages using specialist technologies and design content in an individual manner, ensuring effective review of design, technology and navigation decisions which are linked to practical work.	
P3 produce interactive web pages [IE, CT, SM, EP]		
P4 review and revise own website design work. [CT, RL, EP]		

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

Delivery

Successful delivery of this unit should provide learners with opportunities to investigate all of the aspects relevant to website design, such as the specified audience and the clients needs as well as the creative issues surrounding website design such as inclusivity, human interaction, design vs. usability.

This unit aims to give learners a broad introduction to the creative application of website design, allowing opportunities for use of a wide range of related media and techniques. Tutors should consider integrating the delivery of this unit with any other relevant units the learner is taking as part of this programme of study, especially those involving digital media, hardware and software, photography and interactive media.

Awareness of the demand for web design skills should motivate and stimulate learners to use the internet as a means to be creative in contemporary ways.

Workshops, demonstrations and task-based activities are recommended when teaching how to use hardware and software applications. Although the majority of learners' work will be carried out in a studio/workshop environment, it will be helpful to include demonstrations, visits to galleries and events and informal discussions between professional practitioners, lecturers and learners. Research using the internet, library and multimedia resources will form an essential part of the learning programme. Learners should be informed of current developments in web-authoring software and conventions. Delivery should stimulate, motivate, educate and inspire the learner and appropriate connections should be made with vocational practice.

Health and safety issues relating to workshop practice should be stressed, as working in studios and workshops that combine technology and traditional media can be dangerous. Learners will need to be aware of health and safety issues relating to the equipment and learning resources they use and how to reduce risks to themselves and others.

Learning outcome 1 covers the knowledge of current web technologies. Learners will have to become confident with using computers, the internet and internet browsers. At an early stage, tutors should encourage learners' analytical skills through probing questions, discussions and relevant digital resources. It is appropriate to use the correct technical terms when researching technologies. Investigations should cover a broad range of technologies in order to develop a cohesive picture of creative and vocational applications and demand. There is a need here for learners to begin to ask how these technologies could be used and contribute to their own design work and how their work might change or be affected by developments.

Learning outcome 2 covers the understanding of design issues. This learning outcome may have a strong impact on learning outcome 3 and the production of web pages and clear connections between analysis and production should be made. At this stage learners should be taught the constraints that computer platforms, browsers and hardware put on design content. It will be helpful for learners to be able to access more than one platform, browser and monitor for browsing. It may be helpful to demonstrate the working practices of professionals through the deconstruction of web pages. Ready-made code should be available for learners to examine and modify; this would add vocational relevance. Learners also need to be able to experiment with image optimising and formats. Underpinning knowledge of the design conventions will help learners evaluate the effectiveness of web pages. It is recommended that they have easy access to poor design and good design in order to apply knowledge to working examples.

Learning outcome 3 covers the application of the underpinning knowledge of design, conventions and technology used in web authoring and other software in order to design and produce their own websites. The software should be current, but will depend on the equipment and resources available in centres and the chosen pathway or specialism. It is recommended that a combination of software is used in order to make meaningful and interactive web pages. This may include interactive and multimedia authoring, audio, video, image manipulation, database, desktop publishing, image optimising and web-authoring software. The combination of software and hardware will help learners develop an understanding of the scope of benefits and application of design within the internet. Learners need to employ the correct techniques for using hardware and software and understand the potential these have to contribute to the creative process. However, opportunities for an active and experimental approach should be created which will encourage learners to find new ways of working and achieving unusual results. This is especially relevant for learners that are unused to working with digital media.

For learning outcome 4 learners will review their own designs using technical vocabulary and make relevant design, content, technology and navigation decisions. Learners should be taught reflective skills and given opportunities to use them in order to improve their work during the developmental and production process. The contribution of design to the web design process will need to be stressed. Particular attention should be paid to the effectiveness of web pages, their aesthetic and technical qualities and accessibility. Reviewing work can be done in many ways, ie written, presentation, discussion, visual, diagram. Written methods alone may be problematic for some learners.

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
Introduction to unit. **Assignment 1:** Portfolio Website • Discussion – initial thoughts • Potential, constraints, contexts • Possible outcomes • Idea generation.
Guest speaker • Web designer.
Field trip • Exhibition • Museum • Studio.

Topic and suggested assignments/activities and/assessment
Stage 2: Research (supported study time) • Individual learning plans • Production of sketchbook work, thumbnails and roughs • Annotation and research • Idea development • Development of final ideas • Informal discussions.
Stage 3: Experimental workshops • Idea development – navigation, flow charts • Software/hardware training – HTML, CSS, Flash master classes • Learner initiated study.
Stage 4: Website development (learner initiated study) • Individual learning plans • Idea development • Time management • Formal discussion with tutors • Assignment feedback • Evaluations • Formal and informal presentation/discussion.
Stage 5: Review of outcomes • Individual learning plans • Idea generation and development • Interim critique • Final critique • Discussion group • User testing.
Review of unit and assessment.

Assessment

To achieve a pass grade learners will be expected to provide evidence in the form of a sketchbook; electronic or paper based, design boards, annotated notes as well as a final working website to the given theme or assignment brief that show they have investigated a range of web technologies and design issues that have influenced their own designs. Learners will need to be guided through how all this can influence the development of their work and how to generate ideas incorporating these findings using basic idea generating techniques. Learners should produce evidence through sketchbook annotation whether digital or paper-based, interim critiques, computer printouts, individual learning plans that cover the learning that has taken place including the generation and development of ideas, the production, presentation and review of final outcomes.

For a merit grade, the learner must provide a variety of evidence in the form of digital or paper-based annotated sketchbooks, design boards, discussion evidence that shows they have effectively investigated a range of web technologies and design issues that have purposefully influenced their own designs. Learners will demonstrate competence in the way that they apply the results of their investigations to the origination and development of page layouts. Learners should show that they have a clear understanding of the use of layout conventions. A coherent and individual approach to the development of ideas and final solutions should be evident within the learners work, justification of these ideas and solutions should also be evident in the form of written notes, verbal feedback and possibly learning journals.

Learners will produce final designs that show an individual and thoughtful process of decision-making has taken place. Learners will coherently present their work for a given brief to an effective standard of presentation coherently identifying how web technologies and website issues have affected their design decisions.

For a distinction grade, learners will need to demonstrate they have a considered understanding of the web technologies and can confidently can use these technologies, they should show that they can apply this understanding creatively and fluently to the set brief using a wide variety of idea generation techniques which convey comprehensive knowledge of the issues surrounding website design. Learners should demonstrate confidence in the presentation of highly imaginative work produced against a given theme or assignment brief. Work should be presented to high standard and acceptable forms of evidence are identified in the pass and merit delivery.

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, M2, D1	**Assignment 1:** Portfolio Website	An artist/designer/craftworker wants to promote their work and gain feedback/network with others creating similar work. They research ideas, construction methods and structures for a website to achieve this aim, creating and developing their own website.	Research, develop ideas, designs and produce a final portfolio website. Research and Ideas can be generated in sketchbooks either paper based or PDF. Ideas and final pieces can be developed using various digital and traditional techniques taught in workshops and master classes. The finished site should be aesthetically pleasing as well as technically sound. Finished work presented to a professional standard – hosted site, mounted work, formal presentation.

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

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

Level 1	Level 2	Level 3
Introduction to Graphic Visual Language	Working with Graphic design Briefs	Design for Advertising
	Working with Interactive Media Briefs	Words and Images in Graphic Design

National Occupational Standards

This unit also provides development opportunities for some of the underpinning skills, knowledge and understanding of the following National Occupational Standards:

CCSkills Sector Skills Council

Design (revisions in draft form June 2009)

- DES5 Follow a design process
- DES6 Work effectively with others in a creative environment
- DES7 Contribute to the production of prototypes, models, mock-ups, samples or test pieces
- DES8 Explore the use of colour in a creative environment
- DES9 Research, test and apply techniques for the design of products
- DES10 Create visual designs
- DES11 Provide written information in relation to your design work
- DES12 Make a presentation
- DES38 Manage design realisation
- DES39 Manage a design project

Skillset Sector Skills Council

Interactive Media and Computer Games

- IM1 Work Effectively in Interactive Media
- IM6 Use Authoring Tools to Create Interactive Media Products
- IM16 Plan Content for Web and Multimedia Products
- IM17 Architect Interactive Media Products
- IM24 Create 2D Animations for Interactive Media Products
- IM27 Create Sound Effects for Interactive Media Products
- IM28 Create Music for Interactive Media Products.

Essential resources

Specialist graphic design studios and digital workshops will be required. These should be equipped with appropriate hardware, software and materials to fulfil the practical work in this unit. Access to digital media and design software is essential. A well-stocked learning resource centre should be available with appropriate research materials in the form of books, magazines and internet facilities.

The computer software and hardware resources required will vary according to the specific pathway/ specialism, but are likely to include:

- computers
- monitors
- digital camera and video camera
- printers
- scanners
- web camera
- graphics tablets
- external and internal storage devices
- internet access
- web-authoring software
- image manipulation software
- image optimising software
- video and audio software
- interactive and multimedia software.

Learners will also need access to a range of traditional media and associated tools and equipment together with adequate work and storage space. Library and learning facilities that enable learners to access a range of examples of web design and content should be available.

Employer engagement and vocational contexts

Centres should develop links with practising artists, craftspeople and designers, to deliver assignments to learners or to provide work experience.

Links with employers are essential to the delivery of the programme for work experience and future employment.

Vocational learning support resources:

- Learning and Skills Network – www.vocationallearning.org.uk

Business and finance advice:

- local and regional Business Link – www.businesslink.gov.uk

Assignments should be vocationally relevant; centres should consider the delivery of 'live projects' for example to support the vocational content of the unit and programme.

Creative and cultural skills (www.ccskills.org.uk), the sector skills council for design have launched the web portal Creative Choices (www.creative-choices.co.uk). This portal has a range of information about careers in the design sector, including job descriptions.

Skillset, the sector skills council for creative media (www.skillset.org),, provide details on their interactive media pages (www.skillset.org/interactive/careers) about careers advice and industry information, plus a regularly updated news and events page.

Indicative reading for learners

Textbooks

Bardzell J – *Macromedia Dreamweaver 8 with ASP, Coldfusion, and PHP: Training from the Source* (Macromedia, 2005) ISBN 978-0321336255

Bergner O – *New Masters of Flash: Volume 3* (Apress, 2005) ISBN 978-1590593141

Cederholm D – *Bulletproof Web Design: Improving Flexibility and Protecting Against Worst-Case Scenarios with XHTML and CSS* (New Riders, 2007) ISBN 978-0321509024

Curtis H – *Hillman Curtis on Creating Short Films for the Web* (New Riders, 2005) ISBN 978-03212789l3

Goto K and Cotler E – *Web Redesign: Workflow That Works* (New Riders, 2004) ISBN 978-0735714335

Ibanez A, Zee N and Harris S – *HTML and Web Artistry 2: More than Code* (New Riders, 2002) ISBN 978-0735710290

Krug S – *Don't Make Me Think! A Common Sense Approach to Web Usability* (New Riders, 2005) ISBN 978-0321344755

Langridge S – *DHTML Utopia: Modern Web Design Using JavaScript & DOM* (SitePoint Pty Ltd, 2005) ISBN 978-0957921894

Macdonald N – *What Is Web Design?* (RotoVision, 2003) ISBN 978-2880466862

Peters K – *Foundation ActionScript Animation: Making Things Move!* (Friends of Ed, 2007) ISBN 978-1590597910

Shea D and Holzschlag M – *The Zen of CSS Design: Visual Enlightenment for the Web* (Peachpit Press, 2005) ISBN 978-0321303479

Thatcher J – *Constructing Accessible Websites* (Apress, 2003) ISBN 978-1590591482

Wilton P and McPeak J – *Beginning Javascript* (John Wiley and Sons, 2009) ISBN 978-0470525937

Zappaterra Y – *Editorial Design (Portfolio Series)* (Laurence King, 2007) ISBN 978-1856694339

Other reading

Appropriate software manuals

Journals

Computer Arts

Computer Arts Projects

Creative Review

Websites

www.adobe.com	web design software
www.bbc.co.uk	BBC
www.computerarts.co.uk	Computer Arts magazine
www.oswd.org	open source web design templates
www.ukwda.org	UK web design association
www.webdesignhelper.co.uk	page templates, fonts and tutorials
www.webpagesthatsuck.com	worst websites

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 ...
Independent enquirers	discussing assignment requirements researching and annotating evaluating work
Creative thinkers	idea generation and development development of final outcomes evaluating work
Reflective learners	evaluating own work and that of others presenting ideas and final solutions
Team workers	generating ideas developing software and hardware skills
Self-managers	researching and annotating developing ideas and final solutions managing time and workload
Effective participators	idea generating peer assessing discussing work.

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 ...
Reflective learners	giving feedback on assessment decision
Team workers	discussing ideas
Self-managers	organising time and managing resources effectively
Effective participators	participating in critiquing own work and that of others.

Functional Skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	researching examples of words and images developing and producing final outcomes
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	user testing of websites
Manage information storage to enable efficient retrieval	effectively back up digital files
Follow and understand the need for safety and security practices	handling sensitive data
Troubleshoot	working through any issues arising using correct procedures
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	finding related examples to support development of ides
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	finding and using relevant information to support the development of ideas and the formulation of opinions
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: • text and tables • images • numbers • records	developing and producing websites
Bring together information to suit content and purpose	researching, developing ideas, producing final outcomes
Present information in ways that are fit for purpose and audience	developing and producing websites
Evaluate the selection and use of ICT tools and facilities used to present information	evaluating final website design
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	handling contact lists of clients

Skill	When learners are ...
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	scaling screen sizes and resolutions changing font sizes resizing graphics
Identify the situation or problem and the mathematical methods needed to tackle it	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	presentation of ideas, development, evaluation and analysis
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	assignment opportunities, contexts and constraints
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	annotating of ideas written evaluation.