Unit 13: Website Design & Development

Unit code	**Y/618/7419**
Unit level	**4**
Credit value	**15**

Introduction

Wireless, public hotspot, mobile broadband and unlimited network connections mean that accessing and using the internet to request, use and post information has never been so easy, or so important. As public, organisational and business demand increases so does user expectation. Designers need to use technology successfully to deliver high-quality and consistent User Experiences (UX) through friendly and functional User Interfaces (UI). However, as the software and hardware evolve so does the challenge of design.

This unit introduces students to the underpinning services required to host, manage and access a secure website. Students will then be introduced to and explore the methods used by designers and developers to blend back-end technologies (server-side) with front-end technologies (client-side). To help ensure that new designers are able to design and deliver a site that offers an outstanding User Experience (UX) supported by an innovative User Interface (UI), students will discuss the reasons, requirements, relationships, capabilities and features of the systems they will be using. This gives them an opportunity to explore various tools, techniques and technologies with 'good design' principles in order to plan, design and review a multipage website.

Among the topics included in this unit are: domain structure, domain name systems, web protocols, database servers, development frameworks, website publishing, content management, search engine optimisation, web browsers, HTML standards, CSS and CSS pre-processing (LESS, SASS), presentation models, responsive design, integrated development environments, user requirements, interface design, user experience, branding, navigation, optimisation and validation.

On successful completion of the unit, students will be able to explain the server technologies and management services associated with the hosting and management of secure websites, categorise website technologies, tools and software used to develop websites, utilise website technologies, tools and techniques with good design principles to create a multipage website and create and use a Test Plan to review the performance and design of a multipage website.

As a result, students will develop skills such as communication literacy, critical thinking, analysis, reasoning and interpretation, which are crucial for gaining employment and developing academic competence.

Learning Outcomes

By the end of this unit students will be able to:

LO1 Explain server technologies and management services associated with hosting and managing websites

LO2 Categorise website technologies, tools and software used to develop websites

LO3 Utilise website technologies, tools and techniques with good design principles to create a multipage website

LO4 Create and use a Test Plan to review the performance and design of a multipage website.

Essential Content

LO1 Explain server technologies and management services associated with hosting and managing websites

Hosting and website management:

Investigate relationships between domain names, Domain Name System (DNS) services and communication protocols used to access a website.

Overview of publishing and managing secure websites, including search engine indexing and ranking.

Different server technologies:

Differences between web server hardware, software and host operating systems.

Advantages of an integrated database system with regard to expanding website capability.

Common web development technologies and frameworks.

LO2 Categorise website technologies, tools and software used to develop websites

Website technologies:

Using front-end technologies, presentation layers and client-side programming to build a User Interface (UI) and effect User Experience (UX).

How back-end technologies, application layers and server-side programming can be used to enable personalisation and deliver dynamic content.

Tools, techniques and software used to develop websites, e.g. integrated development environments, code repositories, low code environments, front-end and back-end processing.

Improving User Experience (UX) through Rich Internet Application (RIA) design using JavaScript and CSS frameworks and packages.

Overview of online content management systems, including possible advantages and limitations with regards to design.

Using web design and development software to design and build a secure website.

LO3 **Utilise website technologies, tools and techniques with good design principles to create a multipage website**

Establish the client and user requirements:

Differentiate client and user requirements from behaviours.

Consider how audience and purpose could influence the look and feel of a website.

Review accessibility and inclusivity standards and guidelines, e.g. W3C, Equality Act 2010 and other relevant legislation, and their possible impact on design and aesthetics.

Research and create good content, combined with good design principles to create a multipage website:

Introduce and use recognised design principles, incorporating accessibility and inclusivity guidelines to implement an appropriately branded, multipage site.

Guidelines and recommended good practice to ensure the website and associated data is 'secure by design'.

Discuss why and how the quality of content can affect the performance of a website.

LO4 **Create and use a Test Plan to review the performance and design of a multipage website**

Consider factors that influence website performance:

Review how intuitive interfaces and actions, user-friendly designs, appropriate graphics, effective navigation and good-quality content can help establish user trust and deliver an improved User Experience (UX).

Consider the effects of good and bad search engine optimisation (SEO) and indexing on the performance of a website.

W3C Validation (HTML and CSS) and how it influences website design and performance.

Establish a Test Plan and use it to assess the performance of a website:

Assess the impact of poorly optimised website graphics.

Research and conduct Quality Assurance (QA) and usability testing on a multipage website.

Learning Outcomes and Assessment Criteria

Pass	Merit	Distinction
LO1 Explain server technologies and management services associated with hosting and managing websites		
P1 Identify the purpose and types of DNS, including explanations on how domain names are organised and managed. **P2** Explain the purpose and relationships between communication protocols, server hardware, operating systems and web server software with regard to designing, publishing and accessing a website.	**M1** Analyse the impact of common web development technologies and frameworks with regard to website design, functionality and management. **M2** Review the influence of search engines on website performance and provide evidence-based support for improving a site's index value and rank through search engine optimisation.	**D1** Justify the technologies, management services, tools and software chosen to realise a custom-built website.
LO2 Categorise website technologies, tools and software used to develop websites		
P3 Discuss the capabilities and relationships between front-end and back-end website technologies and explain how they relate to presentation and application layers. **P4** Discuss the differences between online website creation tools and custom-built sites with regard to design flexibility, performance, functionality, User Experience (UX) and User Interface (UI).	**M3** Analyse a range of tools and techniques available to design and develop a custom-built website.	

Pass	Merit	Distinction
LO3 Utilise website technologies, tools and techniques with good design principles to create a multipage website		
P5 Create a design document for a branded, multipage website, supported with medium fidelity wireframes and a full set of client and user requirements. **P6** Use the design document with appropriate principles, standards and guidelines to produce a branded, multipage website supported with realistic content.	**M4** Justify the multipage website implementation decisions against the design document.	**D2** Evaluate the design and development process of the multipage website against the design document including any technical challenges faced.
LO4 Create and use a Test Plan to review the performance and design of a multipage website		
P7 Create a suitable test plan, identifying key performance areas to review the functionality and performance of the multipage website developed	**M5** Analyse the Quality Assurance (QA) process and review how it was implemented during the multipage website design and development stages.	**D3** Evaluate the results of the Test Plan and the overall success of the multipage website with recommendations for improvement.

Recommended Resources

Textbooks

Frain, B. (2012*) Responsive Web Design with HTML5 and CSS3*. UK: Packt Publishing.

Krug, S. (2013) *Don't Make Me Think: A Common Sense Approach to Web Usability.* USA: New Riders.

Lidwell, W., Holden, K. and Butler, J. (2010) *Universal Principles of Design, Revised and Updated: 115 Ways to Enhance Usability, Influence Perception, Increase Appeal, Make Better Design Decisions and Teach Through Design*. USA: Rockport Publishers.

Web Links

developers.google.com/web/tools	Google web development tools (General Reference)
getbootstrap.com	Open source web development tool kit (General Reference)
www.w3.org	World Wide Web Consortium (General Reference)

Links

This unit links to the following related unit:

Unit 36: User Experience and Interface Design.