Pearson
Higher Nationals in

Computing

SCHEME OF WORK

UNIT 10: Website Design & Development

For use with the Higher National Certificate and
Higher National Diploma in Computing

First teaching from September 2017

Issue 1

Pearson

Please note that Schemes of Work are for guidance and support only.

They can be customised and amended according to localised needs and requirements.
All schemes of work can be adapted to suit specific establishment time frames in line with GLH delivery.

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SCHEME OF WORK

Programme Title:	Higher Nationals in Computing	**Level:**	4
Unit Title:	Website Design & Development	**Tutor:**	
Unit Number:	10	**Academic Year:**	

Learning Outcomes (LO)	Assessment 1	Assessment 2	Assessment 3	Assessment 4
Explain server technologies and management services associated with hosting and managing 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.	☐	☐	☐	☐
Create and use a Test Plan to review the performance and design of a multipage website.	☐	☐	☐	☐

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Sessions	Learning Outcome(s)	Session Activities
Session 1	LO1 Topic: Hosting and website management	Introduction to the unit's content and the unit assessment. Present an outline of website design and its supportive technologies and services. Investigate the relationship between domain names, DNS services and communication protocols used to access a website. Sample activities: • Tutor-led/facilitated group discussions on the relationship between domain names, DNS services and communication protocols. • Pair work: Investigate domain registration, domain records and communication protocols.
Session 2	LO1 Topic: Hosting and website management	Issue Assignment 1 – Introduction to the first assignment. Overview of publishing and managing websites including search engine indexing and ranking. Sample activities: • Tutor-led/facilitated group discussions. • Individual or group work on publishing and managing websites including search engine indexing and ranking.
Session 3	LO1 Topic: Different server technologies	Differences between web server hardware, software and host operating systems. Sample activities: • Pair work: Investigate differences between web server hardware and software. • Group work: Research different host operating systems and hosting services (including costs, features, limitations, capabilities, etc.).

Sessions	Learning Outcome(s)	Session Activities
Session 4	LO1 Topic: Different server technologies	Review advantages of an integrated database system with regards to expanding website capability. Sample activities: • Tutor-led/facilitated group discussions on advantages of integrated databases. • Group work: Research integrated database uses, features and capabilities (e.g. Amazon, eBay, etc.). • Pair work: Review the advantages and requirements of websites with integrated databases.
Session 5	LO1 Topic: Different server technologies	Review and compare common web development technologies and frameworks. Sample activities: • Tutor-led/facilitated group discussions. • Tutorials on common web development technologies and frameworks (PHP, ASP.NET, J2EE, ColdFusion, Ruby, MySQL, SQL Server, MongoDB, Oracle, PostgreSQL, etc.).
Session 6	LO2 Topic: Website technologies	Introduce front-end technologies, presentation layers and client-side programming to build a rich internet application and a user interface (UI), and the effect on the user experience (UX). Sample activities: • Tutor-led/facilitated group discussions and tutorials on HTML, CSS (including CSS pre-processing (LESS, SASS), JavaScript, jQuery, Bootstrap and responsive design. • Group work: Investigate user interface (UI) design and user experience (UX). • Individual work: Explore and investigate how to improve user experience (UX) using rich internet application design with JavaScript and CSS frameworks and packages.

Sessions	Learning Outcome(s)	Session Activities
Session 7	LO2 Topic: Website technologies	Review back-end technologies, application layers and server-side programming. Sample activities: • Pair work: Investigate website personalisation and dynamic content. • Group work: Discuss PHP, ASP.NET, J2EE, ColdFusion, Ruby, MySQL, SQL Server, MongoDB, Oracle, PostgreSQL, etc. • Tutor-led/facilitated group discussions on content management systems including possible advantages and limitations.
Session 8	LO2 Topic: Tools, techniques and software used to develop websites	Review of student progress on the first assignment. Introduce and explore various tools, techniques and software used to design and build a website. Sample activities: • Tutor-led discussions on tools and software (e.g. Full Stack Development, HTML editors, graphics, animation, audio), techniques (e.g. mock-ups, storyboards, hierarchical charts, user profiles). • Group discussion on design and layout techniques. • Pair work: explore implementing and using HTML, CSS, JavaScript, jQuery, Bootstrap, etc.
Session 9	LO2 Topic: Tools, techniques and software used to develop websites	Practical tutorial/workshop. Recap using web design and development software to design and build a website. Sample activities: • Tutor supported practical work. • Individual or pair work: Investigate and use web design and development tools to create a simple site.

Sessions	Learning Outcome(s)	Session Activities
Session 10	LO2 Topic: Tools, techniques and software used to develop websites	Review of student drafts for first assignment. Practical tutorial/workshop. Recap using web design and development software to design and build a website. Sample activities: • Tutor supported practical work. • Individual or pair work: Investigate and use online website creation tools to create a simple site.
Session 11	LO3 Topic: Establishing client and user requirements	Issue Assignment 2 – Introduction to the second assignment. Introduce the principles of client and user requirements and differentiate them from user behaviours. Sample activities: • Pair work: Investigate client and user requirements. • Group work: Explore user behaviours (investigate own and colleague's common browsing behaviours). • Individual or pair work: Create user profiles.
Session 12	LO3 Topic: Establishing client and user requirements	Review how audience and purpose could influence the look and feel of a website. Sample activities: • Pair work: Investigate audience and purpose and reflect on website branding, layout, functionality. • Individual work: Create a website design based on audience and purpose.
Session 13	LO3 Topic: Establishing client and user requirements	Introduce and discuss accessibility standards and guidelines (e.g. W3C Accessibility, WAI, WCAG, WAI-ARIA,). Sample activities: • Pair work: Investigate accessibility standards and guidelines. • Individual work: Consider and explore impact on design and aesthetics.

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Session 14	LO3 Topic: Creating good content combined with good design principles to create a multipage website	Introduce good design principles (alignment, 80/20, whitespace, colour/highlighting, organisation and symmetry, consistency, latch/five hat racks, Fitts' law, Hick's law, hierarchy, iconic representation, interference effects, errors and feedback, Ockham's razor, proximity, etc.). Sample activities: • Individual work: Use good design principles incorporating accessibility guidelines to implement an appropriately branded, multipage design/site.
Session 15	LO3 Topic: Creating good content combined with good design principles to create a multipage website	Discuss why and how the quality of content can affect the performance of a website. Sample activities: • Individual work: Students to review different sites and reflecting on content (target audience, writing style, quality, images, type of information, relevance, etc.). • Pair work: Review and debate why and how the quality of content can affect the performance of a website. • Group work: Consider and present the factors that affect the performance of a website.
Session 16	LO4 Topic: Considering the 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). Sample activities: • Pair work: Research and justify instances where user interfaces could be considered intuitive. • Pair work: Research and justify examples of effective navigation. • Group work: Discuss and define 'user-friendly designs'. • Individual work: Design and defend a 'user-friendly' user interface for a particular system, application or problem.

Sessions	Learning Outcome(s)	Session Activities
Session 17	LO4 Topic: Considering the factors that influence website performance	Consider the effects of good and bad search engine optimisation (SEO) and indexing on the performance of a website. Sample activities: • Individual work: Investigate search engine optimisation on existing pages (domain names, page name, keywords, tags, etc.). • Pair work: create a search engine guide highlighting online utilities, guidelines and recommendations for good site optimisation. • Group work: debate and justify recommendations.
Session 18	LO4 Topic: Considering the factors that influence website performance	Review of student progress on the second assignment. Review W3C HTML and CSS Validation. Sample activities: • Pair work: Investigate W3C HTML and CSS validation and discuss how it can influence website design and performance. • Individual work: Create a fully validated HTML and CSS webpage.
Session 19	LO4 Topic: Establishing a test plan and use it to assess the performance of a website	Recap factors that influence website performance and introduce test planning. Discuss the use of website graphics and branding. Review common problems with regards to poorly optimised website graphics. Sample activities: • Individual work: Assess and discuss the impact of poorly optimised website graphics.

Sessions	Learning Outcome(s)	Session Activities
Session 20	LO4 Topic: Establishing a test plan and use it to assess the performance of a website	Review of student drafts for second assignment Recap and summarise website design supported with a reflection of the learning outcomes. Discuss quality assurance (QA) and usability testing on a multipage website. Sample activities: • Pair work: Discuss and create a suitable test plan for use with QA and usability. • Individual work: Research and conduct QA testing on a multipage website.