Cambridge TECHNICALS

OCR LEVEL 3
CAMBRIDGE TECHNICAL
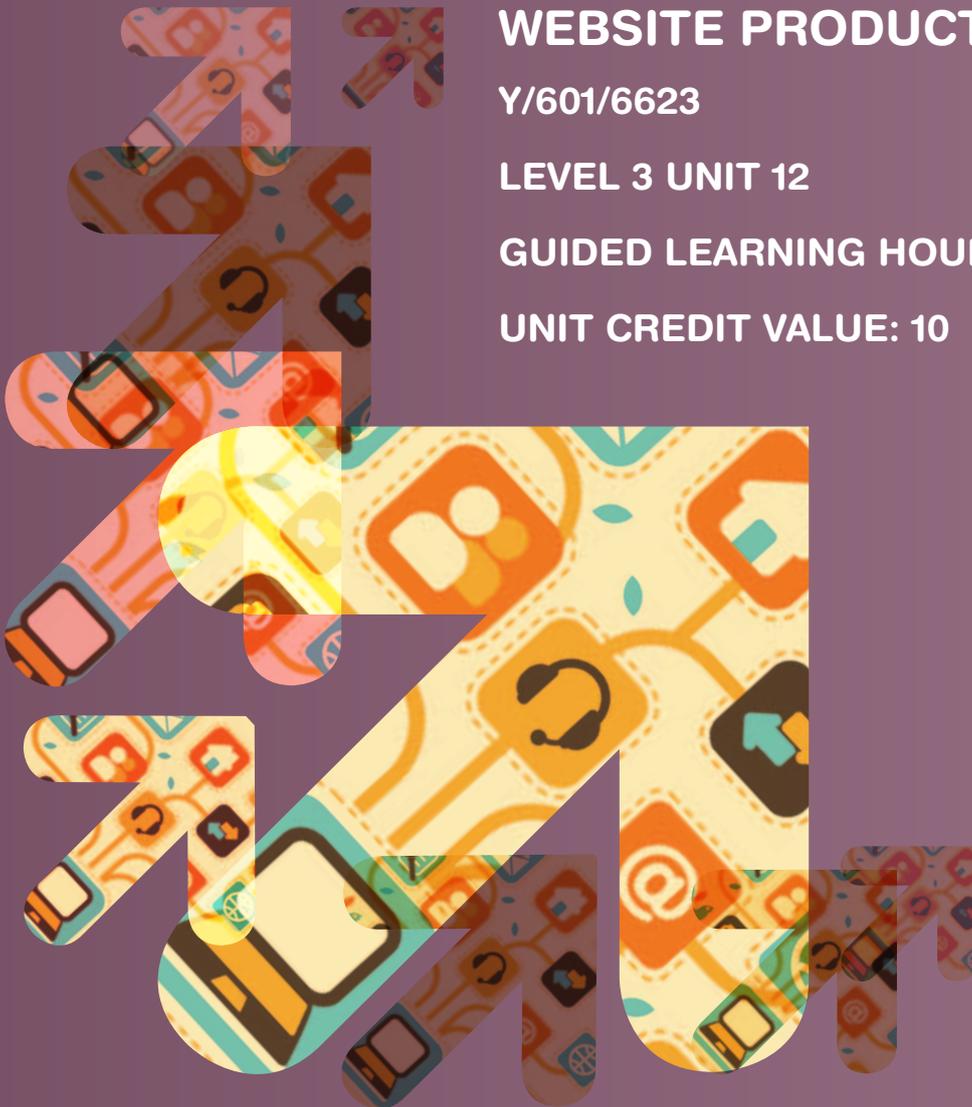## CERTIFICATE/DIPLOMA IN

IT

WEBSITE PRODUCTION

V601/6623

LEVEL 3 UNIT 12

GUIDED LEARNING HOURS: 60

UNIT CREDIT VALUE: 10

OCR

WEBSITE PRODUCTION

Y/601/6623

LEVEL 3 UNIT 12

AIM OF THE UNIT

Nearly all businesses and organisations realise the importance of having a web presence in the 21st century. It provides an opportunity to reach an international audience with their product or brand. Websites need to be well designed to keep visitors returning and avoid excluding user groups by being inaccessible. Companies need to analyse the technical considerations to ensure they do not hinder the user experience.

This unit will prepare learners to design, create and test a fully functioning website, while also providing essential grounding knowledge on the architecture, design and security issues that need to be considered.

ASSESSMENT AND GRADING CRITERIA

Learning Outcome (LO) The learner will:	Pass The assessment criteria are the pass requirements for this unit. The learner can:	Merit To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	Distinction To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Understand web architecture and components	P1 outline the web architecture and components which enable internet and web functionality		
2 Understand the factors that influence website performance	P2 explain the user side and server side factors that influence the performance of a website		
	P3 explain the security risks and protection mechanisms involved in website performance	M1 compare and contrast current interactive websites for performance and security	D1 discuss the impact that cases of website security breaches have had on society
3 Be able to design websites	P4 using appropriate design tools, design an interactive website to meet a client need	M2 produce annotated design documentation for an interactive website to meet a client need	
4 Be able to create websites	P5 create an interactive website to meet a client need	M3 implement CSS in an interactive website to improve the site to meet a client's needs	D2 carry out acceptance testing with client on an interactive website

TEACHING CONTENT

The unit content describes what has to be taught to ensure that learners are able to access the highest grade.

Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative, it should be noted that where e.g. is used , learners must know and be able to apply relevant examples to their work though these do not need to be the same ones specified in the unit content.

LO1 Understand web architecture and components

Web architecture
- Internet service providers (e.g. Virgin Media, BT, Sky)
- web hosting services (e.g. free hosts; Google Sites, Free-space; paid hosts; JimdoPro, Fasthosts)
- domain names and structures
- web design software (e.g. Dreamweaver, WebPlus, CoffeeCup).

Components
- web servers (e.g. IIS, Apache)
- email servers (e.g. Icewarp)
- proxy servers
- routers
- browsers (e.g. Internet Explorer, Mozilla Firefox, Google Chrome, Opera, Safari)
- email applications (e.g. Microsoft Outlook, Google Mail, Windows Live Hotmail)
- Internet Protocols (e.g. TCP/IP).

LO2 Understand the factors that influence website performance

User side
- connection speed (e.g. dial-up, broadband, mobile broadband, WI-FI)
- browser (e.g. latest, and older versions)
- PC Memory (e.g. cache, RAM).

Server side
- server storage space
- bandwidth limitations
- pages with too many scripts
- website content (e.g. databases, file formats used for images, sound, video, animation, additional technologies such as AJAX, ActiveX).

Security risks
- hacking
- pagejacking
- phishing
- viruses
- identity theft.

Security protection mechanisms
- firewalls
- secure socket layers (SSL)
- digital certificate
- use of passwords
- legal considerations (e.g. Data Protection Act, Privacy and Electronic Communications Regulations, Computer Misuse Act).

Cases
- viruses, trojans and worms
- hackers (e.g. Adrian Lamo, Kevin Mitnick, MafiaBoy)
- identity theft (e.g. Abraham Abdallah).

LO3 Be able to design websites

Website specification
- client needs (e.g. appropriate image, relevant content for website, admin/customer security and passwords, search engine listing, setup/development/maintenance costs)
- user needs (e.g. user friendly navigation, age appropriate content, security)
- planning (e.g. time plan, deadlines).
- purpose
  - e-commerce
  - educational
  - promotional.

Design tools
- navigation map
- storyboarding
- other (e.g. mood boards, flow charts, brainstorming)
- planning software.

LO4 Be able to create websites

Web page layout
- navigation method (e.g. navigation bar, navigation menu, hyperlinks, image links)
- CSS (Cascading style sheets)
- interactive features (e.g. database).

Web page content
- content (e.g. text, images, animation, sound, video)
- spell check and proof read.

Cascade style sheets (CSS)

- internal style sheet (inside the <head> tag)
- external style sheet
- inline style sheet (inside (X)HTML element)
- style sheet syntax
- applying style sheets
- class and ID
- style sheet problems
  - o browser compatibility
  - o netscape and style sheets
- tags for style sheets.

Testing

- creating a test plan/table
- functionality (e.g. working internal, external links, content loads/works)
- usability (e.g. Meta tags, clear navigation, viewable in different browsers, ease of use)
- readability (e.g. proof read, spell checked, text readable with background colour)
- accessibility (e.g. ALT tags included, additional features function)
- review against original specification
- W3C Compliance.

User Feedback

- methods (e.g. questionnaire, survey, interview)
- analysis.

DELIVERY GUIDANCE

Understand web architecture and components

Learners should gain an understanding of what each of the architecture, components and protocols are as identified in the teaching content. This can be facilitated by group discussion, exercises, presentations, or group research tasks.

Understand the factors that influence website performance

Tutor led discussions and group based exercises can be used to teach the influences of website performance, researching both strengths and weaknesses for each of the user and server side factors.

Learners should look at the security risks websites have to be concerned with including hacking, viruses and identify theft. Learners should be encouraged to research examples in the media for these, presenting their findings to a group. They should discuss how these cases and the actions have impacted on society.

This should be followed by research into the security mechanisms that can be used to help protect websites such as firewalls, secure socket layers (SSL), using strong passwords and following appropriate legal considerations such as the Data Protection Act. Group based exercises and case studies can be used to identify potential risks and security measures. Learners should be encouraged either individually or as a group to consider and evaluate existing websites as examples while discussing performance (user side and server side factors) and security measures that websites have used.

Be able to design websites

The learners needs to explore a range of different types of website, created for different purposes. They should note the similarities and differences between different types of websites (e.g. e-commerce, promotional, educational) and discuss as a group how the structure can vary based on the different purposes. It is also useful to research current trends in web design and consider their appropriateness. They can also consider for each site what the needs of the client, and the user might be, as well as looking at methods of interactivity.

Learners should be taught appropriate methods for designing their site such as using mood boards, navigation maps, and storyboards. It is an essential requirement that learners practice design methods and annotation on an existing website.

Learners should be made aware of areas of importance and principles of good web design when designing their site, such as appropriate layout, content, navigation and accessibility. Learners should also be given examples of poorly designed websites as well as reviewing a range of international websites to look for similarities and differences, which can be discussed as a group.

Be able to create websites

It is essential that enough time is given for students to practice using appropriate web development software. The methods required to build a functioning website should be taught, as well as an introduction to CSS. Tutor led demonstrations, step-by-step tutorials, or video tutorials are all excellent ways of introducing learners to new methods. Links for further study could be useful to encourage individual learning.

Reviewing work should also be discussed; learners could use their knowledge from evaluating sites to help them write their own practice evaluations and should consider other aspects that they need to consider for future planning. Learners should be taught effective methods for testing. A test plan/table would be the most suitable way of doing this considering:

- Functionality (e.g. working internal/external navigation, content loads/works)
- Usability (clear navigation, viewable in different browsers, easy to use)
- Readability (proof read, spell checked, text readable with background colour)
- Accessibility (e.g. ALT tags included, additional features function).

This can be practiced on existing websites created in class.

Appropriate methods of gaining feedback should be discussed with learners researching the most effective types of questions and the best format to present them in to ensure they gather the most useful feedback from users. There should also be a consideration of analysing the feedback to improve future work.

SUGGESTED ASSESSMENT SCENARIOS AND TASK PLUS GUIDANCE ON ASSESSING THE SUGGESTED TASKS

Assessment Criteria P1, P2, P3, M1, D1

Assessment criterion P1 could be evidenced by the use of a report or presentation, delivered to a group and evidenced through the presentation, and supported by a tutor observation sheet, or recorded evidence. Each of the listed topics in the web architecture, components and protocols section of the teaching content should be covered, by an explanation of what it is and what it does.

Assessment criterion P2 should consider the server side and user side factors listed in the teaching content. It should explain how these factors can benefit and hinder website performance for a user and the business. This could be an extension of P1 or a separate report and presentation.

Assessment criterion P3 may be presented as a further continuation of the report for P1 explaining the security risks and protection mechanisms involved in website performance.

For merit criterion M1, learners could create either a report or short presentation. Learners must review two examples of each category of website (e-commerce, promotional, educational) and compare and contrast what they believe the client and user needs are, what multimedia / interactive / accessibility / security features have been included and why. They should also consider the user and server side factors and how much they affect the website's performance. Learners should also include any identified improvements for this site and identify innovative content used.

For distinction criterion D1 learners must research the impact that cases of website security breaches have had on society. Five cases should be discussed from the three categories, discussing the threat, the impact on society and how the threat was resolved. This could be included in the previous report but would be best as a standalone document or presentation.

Assessment Criteria P4, M2

For assessment criterion P4, learners must work to an identified brief and clearly identify the purpose of the website and who the target audience is. A scenario can be provided but it is important not to make it too restrictive so it hinders creativity.

Learners should create a specification document which clearly identifies what will be included, the client needs, security,

costs and user needs. The learner should create a time plan with appropriate deadlines to follow the design, creation and testing phases of the project. The learner should plan a website of at least eight pages. Designs should include a mood board, navigation map and storyboards. They should clearly show an appropriate method of navigation, details of styles to be used, and at least three multimedia and interactive elements to be incorporated.

Merit criterion M2 is an extension of P4. The learner must produce annotated designs and layouts for a minimum of eight web pages. Navigation maps should be accurate and storyboards should be detailed and annotated with all elements and assets to be used clearly identified with references to sources, appropriate layouts, links, colour schemes and font styles stated. Learners should ensure they have considered the clients needs carefully and can include in their annotation how their designs meet the identified user's needs.

Assessment Criteria P5, M3, D2

For assessment criterion P5, the planned website of at least eight pages should be created using appropriate software. It must include images, animation, audio and/or video, navigation and interactivity as planned. It is not necessary for the website to be linked to a database, but there should be some appropriate uses of interactivity. The website can be the evidence for this criterion.

For merit criterion M3; the learner should implement improvements to their interactive website to improve site to meet the needs of the client., The improvements must be implemented by using CSS (Cascade Styles Sheets) which may be internal, external or imported. This can be evidenced by the website but must be supported by a tutor witness statement. The created website should be visually appealing, easy to use, with an appropriate level of content but not overloaded, with the three interactive elements planned, and be suitable for purpose and target audience as identified. The improvements should be implemented for at least two different aspects of the site. Evidence of using these aspects can be visible through the completed site and/or appropriate screenshots. Learners may also record iterative testing carried out throughout the process.

Distinction criterion D2 requires learners to fully test their completed website using a detailed test plan/table testing each page of the website. Appropriate tests should be included that cover the functionality, readability, usability and accessibility of the website. It

is not essential for errors to be found but the test plan/table should be detailed with at least eight appropriate tests. Evidence records of iterative testing will support their final testing.

Acceptance testing should then be carried by the client and preferably the target audience recording feedback. This could be evidenced with questionnaires or interviews. It is important that the reviewers completing the feedback are aware of what they are testing and the purpose of the product. There should be an opportunity for them to identify possible improvements.

RESOURCES

It is important to realise not all of these resources are needed to deliver the unit but learners will need access to appropriate software.

• dedicated web creation software (e.g. Dreamweaver)

• additional editing software (e.g.Fireworks, PhotoShop, Serif Draw Plus, Serif PhotoPlus, Paint, PhotoShop, Audacity, MovieMaker, MoviePlus, GIMP)

• other (Internet, Web Server)

SUGGESTED SCENARIOS

• A local tourism guide covering shopping, eating out, entertainment, tourist attractions.

• A fan site (consider a subject with a lot of material e.g. horror movie fan site, a decade (2000s) fan site)

• A forthcoming shopping centre.

• A website for a forthcoming event.

MAPPING WITHIN THE QUALIFICATION TO THE OTHER UNITS

Unit 6   e-commerce

Unit 17   Interactive media authoring

Unit 18   Web animation for interactive media

LINKS TO NOS

IM1   Work Effectively in Interactive Media

IM5   Design User Interfaces For Interactive Media Products

IM6   Use Authoring Tools to Create Interactive Media Products

IM16 Plan Content for Web and Multimedia Products

CONTACT US

Staff at the OCR Customer Contact Centre are available to take your call between 8am and 5.30pm, Monday to Friday.

We're always delighted to answer questions and give advice.

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