Pearson BTEC

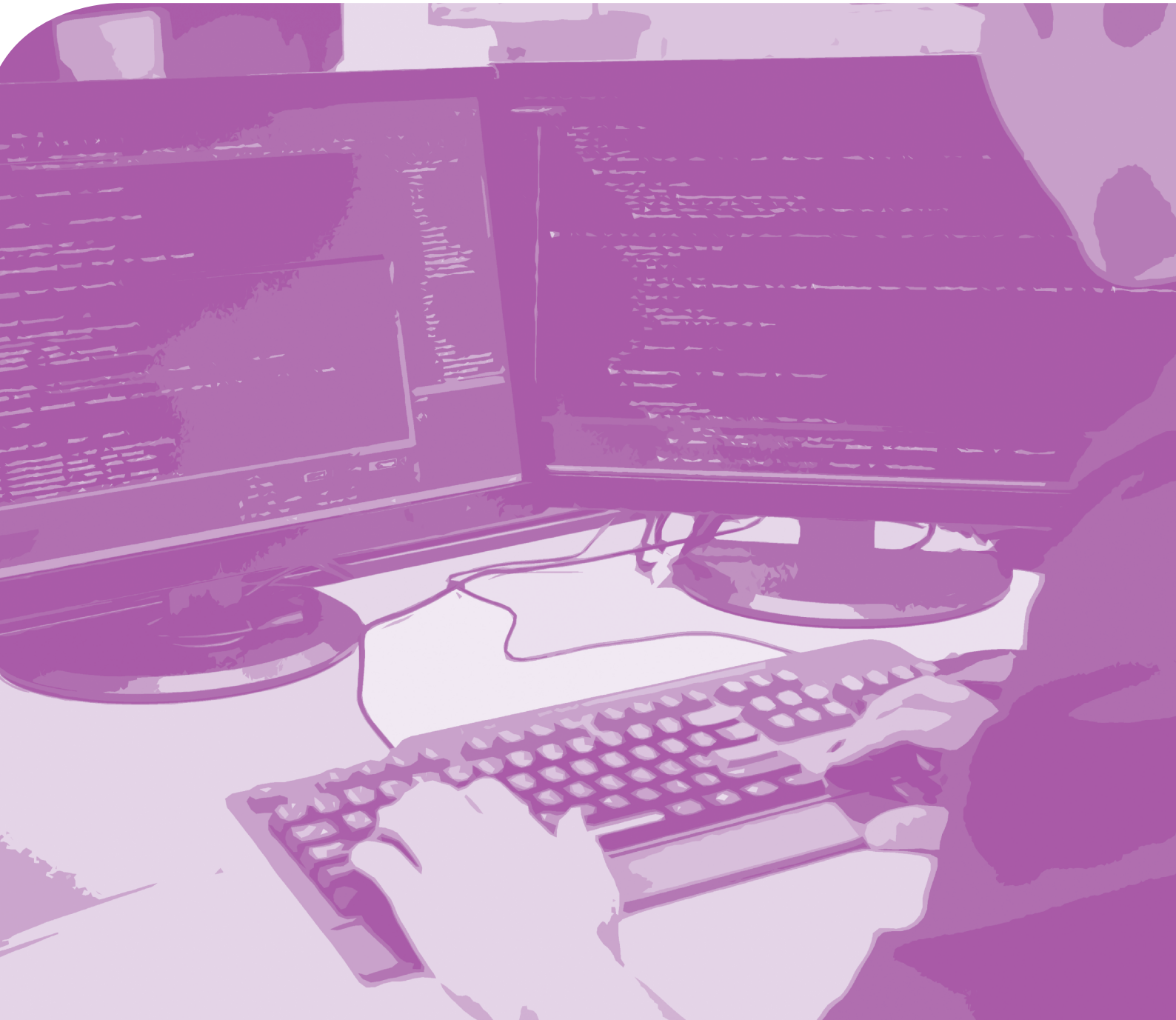
Pearson BTEC Uzbekistan Level 4 Qualifications in

Software Development

Unit 3: Website Development

Teacher Resources

Issue 1



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Introduction

This resource booklet is a companion to the BTEC Uzbekistan Level 4 Qualifications in Software Development. The specification tells you what must be taught and what must be assessed. This resource booklet gives you suggestions and ideas as to how you can do this.

This booklet gives you ideas for teaching and learning, including practical activities, realistic scenarios, ways of involving employers in delivery and of managing independent learning, and how to approach assessments. The booklet also shows you how the specification content might work in practice and inspires you to start thinking about different ways of delivering your qualification.

This resource booklet gives you:

- guidance on how to deliver the units in the qualification
- recommended resources to support the delivery of the units in the qualification
- schemes of work that show the topics, activities and assessments covered in all units across the qualification
- lesson plans with detailed guidance on how to deliver the lessons in the units.

The information in this resource booklet has been put together by teachers who have been close to the development of the qualifications and so understand the challenges of finding new and engaging ways to deliver BTEC qualifications.

The delivery guidance in this booklet gives you information on what you need to consider as you plan the delivery of the qualification. There is information on:

- the structure of your qualification
- how you can build the qualification for your learners
- suggestions for how you might make contact with appropriate employers
- information on other support and resources available.

We have given you unit-by-unit guidance. This includes suggestions on how to approach the learning aims and unit content, as well as ideas for interesting and varied activities. You will also find tips and ideas on how to plan for and deliver your assignments.

We have included a list of carefully selected resources for each unit. These resource lists offer suggestions for books, websites and videos that you can direct your learners to use and/or that you can use to complement delivery.

Unit 3: Website Development

Delivery guidance

Approaching the unit

This unit allows learners to understand the principles of designing and creating a functional website. It focuses on designing and developing a website to meet a client's requirements. Learners should have access to software resources that will allow them to use tools and techniques (specified in the unit content) to design and develop websites. These software resources include text editors (such as Notepad®++), rapid authoring software (such as Dreamweaver®, KompoZer), File Transfer Protocol (FTP) service (such as FileZilla®) to upload websites to a web server.

For learning aim A, learners could carry out some research into websites and give feedback on the purpose and principles of websites. Learners need to understand that website development is influenced by many factors and that this can have an impact on a website's overall performance and success. Learners could present their research findings through class discussions, via online tools such as blogs or wikis, and as reports.

It may be best to teach learning aim C before learning aim B as learners need the practical skills learned in learning aim C before they can learn how to design properly. Learning aim C is practical and requires learners to be capable of developing a website to meet the needs of a client. It is important that learners fully understand the different skills required to develop a website and that they have sufficient practice of applying them.

Having acquired their practical skills in learning aim C, learners cover the design process and the design documentation that needs to be created (learning aim B). It is important that learners see examples of design documentation and that they have the opportunity to practise producing their own.

Getting started

This gives you a starting place for one way of delivering the unit. It is based on the recommended assessment approach given in the specification.

Unit 3: Website Development
Introduction In this unit, learners will review existing websites and comment on their overall design and effectiveness. They will use scripting languages, such as Hypertext Markup Language (HTML), Cascading Style Sheets (CSS) and JavaScript®, and a simple text editor or rapid application development tools. Finally, learners will reflect on the website design and functionality by using a testing and review process.
Learning aim A – Understanding the principles of website design
• This learning aim should ensure that learners understand the suitability of websites for their intended audience and purpose. Understanding the principles of website design will help learners develop high-performance websites that meet client requirements. • Give learners a list of different websites and ask them to work in small groups to identify the purpose and audience of these websites. To ensure that learners understand the principles of website design, highlight 'good' and 'bad' websites and ask learners to identify which principles are being applied in each case.
Learning aim B – Design a responsive website to meet client requirements
• For learning aim B, learners need to see examples of completed documentation (wireframes and web design style guides) so that they understand what they look like and what they contain. • Learners also need to practise creating design documentation of their own before they start the assessment. Real examples of local businesses that need website designs would be best but if that is not possible then case study materials can be used. This activity would work best as a group task. If all groups work to complete the same brief, then learners can see how different groups approach the same task and can peer-award a prize for the best design. Alternatively, this activity could ask learners to work on briefs for different organisations, so that each group designs a website for a different purpose. This would benefit learners in a different way, by showing them a greater variety of website designs for different purposes.

Unit 3: Website Development
Learning aim C – Develop a responsive website to meet client requirements
• Give learners the tools to create a website from scratch. Teach the learning aim content by teacher-led demonstration, followed by individual or small group practice tasks. • Allow learners to look at and study real examples of HTML, CSS and JavaScript to see how these examples of code work. A good way of checking how much they have learned is to give learners sections of code with deliberate errors. Their task is to find and correct the errors.

Details of links to other BTEC units and qualifications

Teaching functionality testing (learning aim C) builds on test plans, which are covered in:

- Unit 1: Introduction to Programming
- Unit 2: Software Analysis and Design.

Resources

Websites

www.w3schools.com

This website allows learners to learn HTML, CSS and JavaScript and also provides interactive practice activities.

www.codecademy.com/learn/learn-html

This is Codecademy's free course to help learners learn HTML. Their website is designed to teach learners the fundamentals of coding. There are interactive activities that must be completed before learners can move on to the next stage. The end of each chapter features assessment activities to help check learners' understanding.

www.csszengarden.com

The CSS Zen Garden website features examples of CSS templates that can be applied to a website design. Use this website to show learners different styles of website layout and how those layouts can be achieved using CSS.

Pearson is not responsible for the content of any external internet sites. It is essential for teachers to preview each website before using it in class so as to ensure that the URL is still accurate, relevant and appropriate. We suggest that teachers bookmark useful websites and consider enabling learners to access them through the school/college intranet.

Scheme of work

Unit	Unit 3: Website Development
Guided Learning Hours	120
Number of lessons	40
Duration of lessons	3 hours
Links to other units	• Unit 1: Introduction to Programming • Unit 2: Software Analysis and Design

Key to learning opportunities			
AA	Assessment activity	**RS**	Revision Session
GS	Guest Speaker	**V**	Visit
IS	Independent Study	**WE**	Work Experience

#	Topic	Lesson type	Suggested activities	Resources
1	Introduction to the unit A1 Features of websites: • common purposes of websites • aiming websites at users who are segmented in different ways.	IS	• **Starter activity:** introduce the unit to learners. • **Teacher-led demonstration:** explain branding and uses of websites. • **Small-group/paired activity:** learners split into groups. Each group analyses different websites, creates a presentation on their findings and feed back to the class on what makes these websites good websites. • **Teacher-led discussion:** learners feed thoughts back to the whole group. • **Teacher-led demonstration:** Demonstrate the different audience-selection techniques used. • **Individual activity:** learners investigate segment demographics and segment psychographics, then write a description of each one, using examples. • **Teacher-led discussion:** learners feed thoughts back to the whole group. • **Plenary activity:** confirm the main learning points of the lesson.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access.

#	Topic	Lesson type	Suggested activities	Resources
2	A1 Features of websites: • principles of good websites design • how media and objects are used on websites.	IS	• **Starter activity:** learners match terminology to definitions and examples. • **Teacher-led demonstration:** analyse four websites to show their common purposes relating to client requirements. • **Individual activity:** learners analyse four websites to look for common purposes and rate them on various criteria. • **Teacher-led discussion:** learners feed thoughts on the four websites and scores back to the whole group. • **Plenary activity:** confirm the main learning points of the lesson.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access. • Four example websites.

#	Topic	Lesson type	Suggested activities	Resources
3	A1 Features of websites	IS	• **Revision activity:** learners discuss the difference between conventional and unconventional websites. • **Starter activity:** learners complete tasks to encourage them to think creatively. • **Teacher-led discussion:** discuss what is meant by 'thinking outside the box' and when and how it is used. Ask learners what they think creativity is. • **Individual activity:** learners investigate what makes unusual websites unique. • **Teacher-led demonstration:** explain the golden ratio is and its application in website design. • **Individual activity:** Learners apply the golden ratio to basic website design for the organisation in given scenario. • **Teacher-led discussion:** learners feed ideas back to the class. • **Plenary activity:** confirm main learning points of lesson.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access. • Scenario for golden ratio activity. • Paper, pens and pencils.

#	Topic	Lesson type	Suggested activities	Resources
4	A2 Factors affecting website performance: • where scripts run • browser compliance • server-side factors • client-side factors.	IS	• **Starter activity:** learners describe difference between two different websites. • **Teacher-led demonstration:** describe the difference between PHP and JavaScript. Show how scripts are used with websites and how JavaScript can be inserted. • **Individual activity:** investigate where scripts run (server-side scripts on the web server or client-side scripts on the local client machine). • **Teacher-led discussion:** learners feed thoughts back to the whole group. • **Teacher-led demonstration:** discuss how different browsers support different elements. Discuss the role of the World Wide Web Consortium (W3C) and demonstrate differences. • **Individual activity:** learners investigate provided websites for browser compliance, accessibility and usability. • **Teacher-led discussion:** learners feed their thoughts back to the whole group. Learners annotate or improve work during discussion. • **Plenary activity:** confirm main learning points of lesson.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access. • List of websites for learners to investigate.

#	Topic	Lesson type	Suggested activities	Resources
5	C1 Hypertext Markup Language (HTML): • structure of webpages • writing organised syntax • block-level and inline elements	IS	• **Starter activity:** learners match HTML tags to definitions. • **Teacher-led demonstration:** show how to create a basic webpage structure. Explain what block-level and inline elements are. • **Individual activity:** give learners task-based worksheet. They complete tasks by using text editor to create a webpage. • **Teacher-led demonstration:** discuss how it important to organise code, showing good and bad examples. • **Individual activity:** give learners examples of code. Learners correct and organise the syntax to be in line with standard ways of working. • **Plenary activity:** learners discuss their findings, annotating their work during discussion to improve what they have done so far.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Text editor worksheet. • Examples of code for learners to correct.

#	Topic	Lesson type	Suggested activities	Resources
6	C1 HTML: • header elements • Creating lists • Adding images	IS	• **Revision activity:** create basic page with one image. • **Teacher-led demonstration:** show how to create headings using header elements; create lists; add, position and format images; use the alt tag. • **Individual activity:** learners add to their basic page created from the revision activity using what they have learned in the previous demonstration. • **Teacher-led demonstration:** show how to create and format tables. • **Individual activity:** give learners task-based worksheet. They complete table-related tasks, adding to the webpages they created in the previous lesson. • **Plenary activity**: discuss outcomes. Learners annotate their work during discussion to improve what they have done so far.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Sample image files. • Tables worksheet. • Learners' work from previous lesson.

#	Topic	Lesson type	Suggested activities	Resources
7	C1 HTML: • elements • structure and formatting • creating links • representing information in tables • use inline frames to add dynamic content.	IS	• **Starter activity:** learners discuss why you might use interactivity on webpages. • **Teacher-led demonstration:** show learners how to add elements to a webpage: links, format text, add email, add imges to page format properties (e.g. galleries), add frames and dynamic content from other websites. • **Individual activity:** learners add to their basic page created from the starter activity. • **Teacher-led demonstration:** create and format tables. • **Individual activity:** give learners task-based worksheet. They complete table-related tasks, adding to the webpages they created in the previous lesson. • **Plenary activity:** discuss outcomes. Learners annotate their work during discussion to improve what they have done so far.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Practice activities and sample files.

#	Topic	Lesson type	Suggested activities	Resources
8	C5 Website testing and C6 Website review: • checking functionality • reviewing website.	IS	• **Starter activity:** learners discuss the different ways we can test computer programs. • **Teacher-led demonstration:** explain testing and different test strategies. • **Individual activity:** Learner apply the different test strategies to different scenarios • **Teacher-led discussion:** learners feed their thoughts back, discussing the impact in terms of purpose, audience, quality and improvements that can be made. • **Individual activity:** Learners check functionality and compatibility. • **Plenary activity:** confirm main learning points of lesson.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access.

#	Topic	Lesson type	Suggested activities	Resources
9	C1 HTML: • creating forms • understanding how web forms work (validation) • preparing and adding audio and video.	IS	• **Revision activity:** Learner's match HTML tags to definitions. • **Starter activity:** find two different websites that use forms. Learners identify the difference between them. • **Teacher-led demonstration:** create a form for a registration webpage, discussing where objects are placed and types of objects used. • **Individual activity:** give learners a scenario that requires them to build a webpage that uses a form. • **Teacher-led demonstration:** add video and audio files to webpage for a specific purpose. • **Individual activity:** learners add video to their webpage can use previously built webpages, testing for functionality and compatibility. • **Plenary activity:** learners discuss their work and identify any changes that they want to make following the discussion.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Scenario for webpage creation. • Sample video and audio files.

#	Topic	Lesson type	Suggested activities	Resources
10	C2 Cascading Style Sheets (CSS): • purpose • referencing CSS within HTML • writing CSS rules • using CSS selectors • writing style sheets • attribute selectors • specify and manipulate colour • length values • add styles to elements.	IS	• **Starter activity:** give learners a disorganised webpage in which some of the tags do not work and ask them to identify and fix the problems. • **Teacher-led demonstration:** show how external CSS files control webpage layouts and elements: backgrounds, colours, length values, text formatting, text styles, tables. • **Individual activity:** learners complete some CSS-related tasks, involving writing efficient style sheets that include CSS rules (pre-defined tags, selectors, classes, IDs) and then test the website for functionality and compatibility. • **Teacher-led discussion:** learners feed their thoughts back to the whole group and discuss. • **Concluding activity:** learners identify any changes that they will make to their work as a result of the discussion.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Sample webpage files.

#	Topic	Lesson type	Suggested activities	Resources
11	C2 CSS: • controlling position of elements • using box model to control appearance of boxes • designing for differently sized screens • using transitions and transforms.	IS	• **Starter activity:** learners look at the layout of a given webpage. Discuss the layout of the webpage. Select some webpages that use div tags and ask learners to test them on different devices. • **Teacher-led demonstration:** demonstrate positioning elements like div tags on webpage using CSS. • **Individual activity:** learners apply the different types of positioning (relative, absolute, fixed, floating and overlapping). • **Teacher-led discussion:** learners feed their thoughts back to the whole group and discuss. • **Concluding activity:** learners identify any changes that they will make to their work as a result of the discussion.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Practice activities and sample webpage files.

#	Topic	Lesson type	Suggested activities	Resources
12	C2 CSS: • controlling position of elements • designing for differently sized screens • using transitions and transforms.	IS	• **Starter activity:** teacher to provide two webpages that the learners configure. • **Teacher-led demonstration:** demonstrate positioning elements like div tags on page using CSS**.** • **Individual activity:** learners add CSS to the website from the previous lesson that will allow it be used on different media devices using fixed layouts, liquid layouts and grids. • **Teacher-led discussion:** learners feed their thoughts back to the whole group and discuss. • **Concluding activity:** learners annotate their work, identifying any changes that they will be make as a result of the discussion.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Practice activities and sample webpage files.

#	Topic	Lesson type	Suggested activities	Resources
13	C3 JavaScript: • search for matching • add JavaScript to webpages • programming functionality • use error handling and debug JavaScript.	IS	• **Starter activity:** learners investigate the different ways to interact with a website selected by the teacher and describe the differences. • **Teacher-led demonstration:** show learners how to insert pre-defined JavaScript to create interactive webpages. This includes inserting a search function to search for letters, numbers, punctuation and other symbols. Demonstrate the basic program, syntax and constructs, and also debugging and error fixing. • **Individual activity:** learners complete a task-based worksheet to create a basic program using JavaScript. • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others in class. Learners demonstrate to the class. • **Concluding activity**: learners annotate their work to identify changes that they will make to their work following the discussions.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • JavaScript worksheet.

#	Topic	Lesson type	Suggested activities	Resources
14	C3 JavaScript: • programming functionality.	IS	• **Starter activity:** Leaners create a program that says 'hello'. • **Teacher-led demonstration:** demonstrate the basic program, syntax and constructs of JavaScript. • **Individual activity:** learners experiment with adding comments, using variables, operators and arithmetic, assignments and data types. • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others. • **Concluding activity:** learners annotate their work to identify changes that they will make following the discussions.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ or similar installed and internet access. • Practice activities and sample files.

#	Topic	Lesson type	Suggested activities	Resources
15	C3 JavaScript: • programming functionality.	IS	• **Starter activity:** Learners create variable and assign it a value. • **Teacher-led demonstration:** demonstrate assignments and data types. • **Individual activity:** learners complete worksheet, completing tasks that ask them to use assignment to variable and data types. • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others. • **Concluding activity:** learners annotate their work to identify changes that they will make following the discussions.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Assignments and data types worksheet.

#	Topic	Lesson type	Suggested activities	Resources
16	C3 JavaScript: • programming functionality.	IS	• **Starter activity:** create a program that multiplies two numbers together and alerts the result. • **Teacher-led demonstration:** demonstrate how to create basic functions that invoke or call an event, particularly looking at search functions. • **Individual activity:** learners complete a task-based worksheet on functions. • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others. • **Concluding activity:** learners annotate their work to identify changes that they will make following the discussions.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Functions worksheet.

#	Topic	Lesson type	Suggested activities	Resources
17	C3 JavaScript: • programming functionality.	IS	• **Starter activity:** Learners create a program that divides one number by another and alerts the result. • **Teacher-led demonstration:** demonstrate iteration for 'For' and 'While' loops. • **Individual activity:** learners complete task-based worksheet on 'For' and 'While' loops. • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others. • **Concluding activity:** learners annotate their work to identify changes that they will make following the discussions.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • 'For' and 'While' loops worksheet.

#	Topic	Lesson type	Suggested activities	Resources
18	C3 JavaScript: • programming functionality.	IS	• **Starter activity:** Learners create a function that displays first name and second name. • **Teacher-led demonstration:** show how arrays are used to store multiple variables. • **Individual activity:** learners complete a task-based worksheet on arrays. • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others. • **Concluding activity:** learners annotate their work to identify changes that they will make following the discussions.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Arrays worksheet.

#	Topic	Lesson type	Suggested activities	Resources
19	C3 JavaScript: • using events to trigger functions.	IS	• **Revision activity:** Learners list the five design principles and discuss them with class. • **Teacher-led demonstration:** show how events work using keyboard or mouse inputs. • **Individual activity:** learners complete a task-based worksheet about events. • **Teacher-led discussion:** learners feed their thoughts back to the whole group, discussing the impact the forms and events would have to the audience. • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others. • **Concluding activity:** learners annotate their work to identify changes that they will make following the discussions.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Events worksheet.

#	Topic	Lesson type	Suggested activities	Resources
20	C3 JavaScript: • the Document Object Model • combining JavaScript with HTML and CSS. C5 Website testing: • checking functionality • checking compatibility.	IS	• **Starter activity:** learners list five interactive things that they have seen on a website and discuss. • **Teacher-led demonstration:** show how to insert existing JavaScript programs. Show how content can be updated from other websites using the Document Object Model (also known as an Application Program Interface). • **Individual activity:** learners practise inserting different dynamic files. • **Teacher-led discussion:** learners feed their thoughts back to the whole group, discussing the impact of inserting dynamic content. • **Individual activity:** Learners check functionality and compatibility. • **Concluding activity:** learners annotate their work to identify changes that they will make following the discussions.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Practice activities and sample files.

#	Topic	Lesson type	Suggested activities	Resources
21	C4 Semantic code: • how semantic code is used by browsers/ assistive technologies • search engine optimisation • using elements to define content • grouping elements, even without relevant non-semantic elements • using semantic mark-up to add textual meaning.	IS	• **Starter activity:** learners complete JavaScript quiz. • **Teacher-led demonstration:** recap how semantic elements are used by browsers and assistive technologies. Discuss the difference between semantic and non-semantic elements, and when and where you would use them, including search engine optimisation. • **Small group/paired activity:** learners investigate both semantic and non-semantic elements and create two webpages using a combination of them. • **Teacher-led discussion:** learners feed their thoughts back to the whole group, discussing the impact. • **Individual activity:** Learners check functionality and compatibility. • **Concluding activity:** learners annotate their work to identify changes that they will make following the discussions.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • JavaScript quiz.

#	Topic	Lesson type	Suggested activities	Resources
22	C4 Semantic code: • using elements to define content • grouping elements, even without relevant non-semantic elements • semantically mark-up self-contained content.	IS	• **Starter activity:** Learners create a loop that asks for names and if names match it gives an alert message. • **Teacher-led demonstration:** explain web accessibility, referring to the World Wide Web Consortium (W3C). Discuss accessibility. • **Small-group/paired activity:** learners research W3C, looking particularly at accessibility and usability. • **Teacher-led discussion:** learners feed thoughts back and discuss. • **Small-group/paired activity:** learners continue to work on webpages from previous lesson, changing the layouts, adding new features that conform to W3C principles and testing or validating the code. • **Individual activity:** Learners check functionality and compatibility • **Plenary activity:** learners discuss what they have done and annotate their work to identify changes that they will make following discussion.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Learners' work from previous lesson.

#	Topic	Lesson type	Suggested activities	Resources
23	B1 Website design: • creating navigation maps.	IS	• **Starter activity:** give learners a website and ask them to draw out a map of how a user might navigate through it. • **Teacher-led demonstration:** explain what a navigation map is and why they are needed. Discuss the different types. • **Small-group/paired activity:** given a scenario, learners decide on the most suitable structure for an organisation's website. • **Group activity (peer review and feedback):** at different stages during the lesson, ask groups to discuss their work with others. • **Plenary activity:** confirm the main learning points of the lesson.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software installed and internet access. • Scenario about an organisation that needs a website.

#	Topic	Lesson type	Suggested activities	Resources
24	B1 Website design: • different design documentation for page layouts.	IS	• **Starter activity:** Learners describe the difference between different navigation maps and what type of organisation uses each type. • **Teacher-led demonstration:** show and discuss the importance of using UI design. Show how page elements exist on key pages. • **Individual activity:** learners complete a task-based worksheet about wireframes. • **Individual activity:** learners complete a task-based worksheet on web design style guides. • **Group activity (peer review and feedback):** at different stages during the lesson, ask learners to discuss their work with others. Learners demonstrate to the class. • **Concluding activity:** learners annotate their work to identify any changes that they will make following discussion.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access. • Wireframes worksheet. • Style guide worksheet.

#	Topic	Lesson type	Suggested activities	Resources
25	B1 Website design: • creating effective page layouts (tables or CSS; images).	IS	• **Revision activity:** learners look at three different websites and state five consistent features that they find on all three. • **Starter activity:** discuss the most common file types. • **Individual activity:** identify how different CSS rules can be used to create effective page layouts. • **Teacher-led demonstration:** discuss the various file types, the importance of compression and its impact on quality. • **Individual activity:** learners complete a task-based worksheet on the different file types for images, video, animation and audio. • **Plenary activity:** learners discuss their work and annotate during discussion to identify any changes that they will make.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access. • Sample image, video, animation and audio files.

#	Topic	Lesson type	Suggested activities	Resources
26	B1 Website design: • creating effective page layouts (navigation systems).	IS	• **Revision activity:** learners explain the difference between segment demographics and psychographics. • **Starter activity:** learners identify different navigation systems. • **Teacher-led demonstration:** explain what a navigation system is. • **Individual activity:** research various navigation systems. • **Whole-group discussion:** learners discuss their findings. • **Teacher-led demonstration:** show how to add text areas and set the properties. • **Small-group/paired activity:** learners investigate the use of text size, fonts, styles and colours on websites. • **Teacher-led discussion:** learners feed their thoughts back to the whole group, discussing the impact of these properties of text. • **Concluding activity:** groups annotate their work to identify any areas to reinvestigate following discussion. Introduce the final assessment activities.	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access.

#	Topic	Lesson type	Suggested activities	Resources
27–28	Learning aim A Final assessment	AA	• **Final assessment activity:** learners spend 6 hours completing Task 1.	• Assessment Workbook. • Computers with appropriate software, word processors, presentation software and access to the internet.
29–31	Learning aim B Final assessment	AA	• **Final assessment activity:** learners spend 9 hours completing Task 2.	• Assessment Workbook. • Computers with appropriate software, word processors, presentation software and access to the internet.
32–39	Learning aim C Final assessment	AA	• **Final assessment activity:** learners spend 24 hours completing Task 3.	• Assessment Workbook. • Computers with appropriate software, such as Notepad++, installed and access to the internet.

#	Topic	Lesson type	Suggested activities	Resources
40	Learning aims A, B and C		• **Learner presentation:** learners demonstrate completed websites to the class. • **Group discussion (peer feedback):** learners give each other feedback. • **Teacher-led discussion:** return marked assessments to learners and go through the assessments in relation to the task briefs. • **Small-group/paired activity:** learners compare each other's work. • **Individual activity:** learners complete feedback questionnaire. • **Teacher-led discussion:** discuss how it can be improved.	• Unit specification. • Assessment Workbook. • Marked assessments and teacher feedback. • Feedback questionnaires.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	1 (3 hours)

Lesson objectives	At the end of the lesson, learners will understand: • organisational brand • the elements that make a good website • website audiences.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Teacher presentation:** introduce the unit to learners. Give an overview of the main topics covered and how learners will be assessed using the Assessment Workbook. Share and explain the assessment schedule.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** explain the purposes of websites, such as organisational branding, contacting organisation, locations for click and collect and so on. Discuss how customers interact with organisations. • **Small-group/paired activity:** learners split into groups to analyse different websites. Each group creates a presentation and feeds back to the class on what makes these websites good websites. Give learners some pointers, such as: o What does this brand claim that it stands for? o define the typography used o describe the colour palette and how it is associated with the brand o describe the imagery used o Why and how has the business used icons? o Is the information provided useful and up to date? • **Teacher-led discussion:** Learners feed their thoughts back to the whole group. • **Teacher-led demonstration:** discuss how organisations select their audience. Demonstrate the different techniques used. • **Individual activity:** learners investigate the use and purpose of segment demographics (such as age, gender, income and occupation) and segment psychographics (such as personalities, lifestyles and social classes). Learners describe the use and purpose of each one, using examples. • **Teacher-led discussion:** learners feed their thoughts back to the whole group.
Concluding activity (20 minutes)	• **Plenary activity:** confirm the main learning points of the lesson.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	2 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • describe the good principles of website design • identify the appropriateness of media and objects • understand conventional and unconventional websites.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access. • Four example websites.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Teacher-led discussion:** learners match a variety of terms used in website design to the correct definitions and examples. This will give them an understanding of the terminology for this part of the unit.

Main activities
 	
(2 hours 10 minutes)
	• **Teacher-led demonstration:** analyse four websites to show their common purposes relating to client requirements. Focus particularly on elements.
	• **Individual activity:** learners analyse four websites (selected by the teacher) to look for common purposes and elements. First, they create a scoring spreadsheet laid out as follows:
	  ○ each client requirement in the first column
	  ○ each score (out of 5) for each requirement in the second column
	  ○ a total score at the bottom of the second column, which they can use to compare each website.
	• **Individual activity:** learners then analyse the websites and give them scores for each element, adding reasons as to why they score differently.
	  ○ navigation
	  ○ fonts
	  ○ colours (background and fonts)
	  ○ content
	  ○ consistent layouts
	  ○ links
	  ○ interactive features
	  ○ analysis of the information provided
	  ○ what interactive features does it have and are they suitable?
	• **Teacher-led discussion:** learners feed their thoughts back to the whole group.

Concluding activity (20 minutes)	• **Plenary activity:** confirm the main learning points of the lesson.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	3 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • understand creativity in web design.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access. • Scenario for golden ratio activity. • Paper, pens and pencils.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes

Starter activity
 	
(30 minutes)
	• **Revision activity: l**earners discuss the difference between conventional and unconventional websites
	• **Starter activity:** help learners to think outside the box through a series of simple exercises:
	  ○ learners think of any word and picture the word in their minds, then rearrange the letters in their head so that they are in alphabetical order
	  ○ in pairs, learners have a conversation without using the letter 'e' in any word, while trying to make conversation that is as normal as possible

Main activities (2 hours 10 minutes)	• **Teacher-led discussion:** discuss what is meant by 'thinking outside the box' and when and how it is used. Ask learners to define creativity. • **Individual activity:** learners investigate different websites that are unusual and analyse what make them different or unique. • **Teacher-led demonstration:** introduce the idea of the 'golden ratio' and how it is applied to website design. Discuss balance, emphasis and proportion, as well as the relationship between the elements on the page. • **Individual activity:** learners apply the golden ratio to basic website design, using paper to draw or sketch out what they think would be the best design for the organisation in a given scenario. Encourage them to consider layout, spacing, content and images. • **Teacher-led discussion:** learners feed their thoughts back to the whole group and discuss.
Concluding activity (20 minutes)	• **Plenary activity:** confirm the main learning points of the lesson.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	4 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • describe the factors that affect website performance • explain client and server side factors and it impact • explain browser compatibility.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access. • List of websites for learners to investigate.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** learners describe the difference between two different websites, especially the layout. Encourage learners to focus on the organisation brand, what it is trying to convey and how they convey that message through website layout.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration**: describe the difference between the PHP and JavaScript). Show how scripts are used within websites and how JavaScript can be inserted. Explain how website performance can be affected by certain factors. • **Individual activity:** learners investigate website performance, focusing on where scripts run. They need think about the importance of server-side and client-side factors, especially when it comes to designing and building websites. They create a mind map of their thoughts for discussion with class. • **Teacher-led discussion:** learners feed their thoughts back to the whole group. • **Teacher-led demonstration**: discuss how different browsers support different elements. Discuss the role of the World Wide Web Consortium (W3C) and demonstrate differences between the browsers. • **Individual activity**: learners investigate provided websites for browser compliance. Try to use sites that have browser problems. Ask learner to investigate browser compliance (for example, which elements are supported by different browsers?) and the role of the W3C (particularly accessibility and usability). • **Teacher-led discussion:** learners feed their thoughts back to the whole group and annotate or improve their work during the discussion.
Concluding activity (20 minutes)	• **Plenary session:** confirm the main learning points of the lesson.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	5 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • understand HTML tags • understand the meaning of 'block-line' and 'inline' elements create a simple webpage • add more features to a website.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Text editor worksheet. • Examples of code for learners to correct.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** learners match HTML tags to the correct definitions and examples.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** show learners how to create a basic webpage structure. Explain the meaning of the terms 'block-level' and 'inline' elements. • **Individual activity:** ask learners to open their text editor (such as Notepad++) and create a simple structure. Give them a task-based worksheet to complete until they have created an example. Once they have completed this, ask them to create a second page of their own choice. • **Teacher-led demonstration:** discuss the importance of organising code, showing good and bad examples. • **Individual activity:** give learners examples of code. Learners correct and organise the syntax to be in line with standard ways of working, including indenting and double quotes.
Concluding activity (20 minutes)	• **Plenary activity:** learners discuss their findings, annotating their work during the discussion to improve what they have done so far.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	6 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • use header elements • add, position and format images • create lists.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Sample image files. • Tables worksheet. • Learners' work from previous lesson.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Revision activity:** Learners create a basic page with one image.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** show how to create headings using header elements; create lists; add, position and format images; use the alt tag • **Individual activity:** using the webpage from the revision activity, learners practise what they have learned in the previous demonstration. • **Teacher-led demonstration:** show how to create and format tables. • **Individual activity:** learners complete a task-based worksheet. They complete table-related tasks, adding tables and more structure to the webpages they created in the previous lesson. They also change the properties, such as adding data and aligning, combining multiple cells, changing positioning and testing their website for functionality and compatibility.
Concluding activity (20 minutes)	• **Plenary activity**: learners discuss the results of their work. Learners annotate their work during discussion to identify changes that they will make.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	7 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • understand how elements are used • use elements to define the structure and formatting of a web page • create links • add emails • create and format tables • use inline frames to add dynamic content

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Practice activities and sample files.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** why use interactivity on webpages. Learners to analyse the components on webpage that are interactive, how effective and appropriate they are.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** show learners how to add elements to a webpage: links, format text, add email, add images to page format properties (e.g. galleries), add frames and dynamic content from other websites. • **Individual activity:** o add interactivity using dynamic files o format text o add email o add images to page format properties. • **Teacher-led demonstration:** create and format tables. • **Individual activity:** o create tables o add data and align o combining multiple cells o positioning. • **Individual activity:** Learners check functionality and compatibility.
Concluding activity (20 minutes)	• **Plenary activity:** groups should annotate their work during discussion to identify changes that will be made as a result of feedback.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	8 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • explain different types of testing strategies • apply different testing strategies • use test data to test validity of websites such as forms login details

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** small groups discuss the different ways in which computer programs can be tested. Encourage learners to think about how they can test the robustness of a website. Ask how they would select the data if required and what criteria they would use.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** explain testing and different test strategies, including visual testing, functional testing, acceptance testing, reviewing the program and improving the program. • **Teacher-led discussion:** learners feed their thoughts back to the rest of the group, discussing the impact of testing in terms of purpose, audience, quality and the improvements that can be made. • **Individual activity:** Learners check functionality and compatibility.
Concluding activity (20 minutes)	• **Plenary activity:** confirm main learning points of lesson.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	9 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • create a form • add video • explain how forms work.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Scenario for webpage creation. • Sample video and audio files.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Revision activity:** show learners a set of pre-defined tags and ask them to match the tags to the correct definitions. Provide a range so that some matches will be straightforward and others will be more difficult. • **Starter activity:** find two different website that use forms. Learners identify the difference between them.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** create a form for a registration webpage, discussing where all the objects are placed. Explain the type of objects that are used. • **Individual activity:** give learners a scenario that asks them to create a webpage. The webpage must include a form, elements, textboxes, labels, radio buttons, form buttons, form controls, text areas, drop-down lists and validation. • **Teacher-led demonstration:** show learners how to add video and audio files to a webpage for specific purposes. • **Individual activity:** learners add video to their webpage from previous lesson. They should consider and insert different file formats, customise controls and add attributes. Learners then test their websites for functionality and compatibility.
Concluding activity (20 minutes)	• **Plenary activity:** learners discuss what they have learned and annotate their work during the discussion to identify changes that they will make.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	10 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to • understand the purpose of CSS • be able to reference CSS within HTML code • write style sheets that include CSS rules • use CSS selectors • create CSS rules • specify and manipulate colour • specify length values • add styles to elements.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Sample webpage files.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** give learners a disorganised webpage in which some of the tags do not work and ask them to identify and fix the problems.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** show learners how external CSS files control webpage layouts and elements. • **Individual activity:** learners complete tasks (working on the same website from the starter activity), such as changing pre-defined tags, adding classes and IDs and applying the CSS box model. They then test their website for functionality and compatibility • **Teacher-led discussion:** learners feed their thoughts back to the whole group and discuss.
Concluding activity (20 minutes)	• **Individual activity:** learners identify any changes they will make to their work as a result of the discussion.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	11 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • understand and apply different positioning within a webpage • use the box model to control the appearance of boxes • understand how to overlap and apply this to a webpage • understand that different devices require configuration within the CSS style sheet.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Practice activities and sample webpage files
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** learners look at the layout of a given webpage. Discuss the layout of the webpage. Select some webpages that use div tags and ask learners to test them on different devices.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** demonstrate positioning elements like div tags on a webpage using CSS. • **Individual activity:** learners apply the different types of positioning (relative, absolute, fixed, floating and overlapping). • **Teacher-led discussion**: learners feed their thoughts back to the whole group and discuss.
Concluding activity (20 minutes)	• **Individual activity:** learners identify any changes that they will make to their work as a result of the discussion.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	12 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • understand fixed layouts • understand liquid layouts • use grids to develop websites.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Practice activities and sample webpage files.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** learners look at the layout of the webpage and identify which tags are semantic and which are not.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** demonstrate positioning elements like div tags on page using CSS. • **Individual activity:** add CSS for different media devices using fixed layouts, liquid layouts and grids. • **Teacher-led discussion:** learners feed their thoughts back to the whole group and discuss.
Concluding activity (20 minutes)	• **Individual activity:** learners annotate their work, identifying any changes that they will make as a result of the discussion.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	13 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • insert pre-defined JavaScript • use JavaScript syntax to create a basic program • understand the three basic programming constructs • understand how to debug a program.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • JavaScript worksheet.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** Learners investigate the different ways in which users can interact with a website (selected by the teacher) and describe the differences. Learners evaluate the effectiveness of the interaction features used on a selected website.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** show learners how to insert pre-defined JavaScript to create interactive web pages. This includes inserting a search function to search for letters, numbers, punctuation and other symbols. Demonstrate the basic program, syntax and constructs, and also debugging and error fixing. • **Individual activity:** learners complete a task-based worksheet to create a basic JavaScript program that uses sequence statements to start with. Learners identify the different constructs, using flowcharts to help with their understanding, and experiment with debugging. • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others in class. Learners demonstrate to the class.
Concluding activity (20 minutes)	• **Individual activity:** learners annotate their work to identify changes that they will make to their work following the discussions.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	14 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • add comments where appropriate • understand variables • understand and apply different elements of JavaScript.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ or similar installed and internet access. • Practice activities and sample files.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** Learners create a program which says 'hello' and echoes back the webpage.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** demonstrate the basic program, syntax and constructs. • **Individual activity:** experiment with adding comments, using variables, operators and arithmetic, assignments and data types. • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others. Learners demonstrate to the class.
Concluding activity (20 minutes)	• **Individual activity:** learners annotate their work to identify changes that they will make following the discussions.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	15 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • understand assignment • apply assignments using arithmetic • explain different data types and where they are used.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Assignments and data types worksheet.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** Learners create a variable and assign it a value.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** demonstrate assignments and data types. • **Individual activity:** learners complete a task-based worksheet, completing tasks that ask them to use assignment to variable (adding, subtracting or both, dividing and multiplying) and data types (adding number and a string, evaluating expressions and dynamic types). • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others. Learners demonstrate to the class. • **Plenary activity:** learners should annotate their work, during discussion to identify changes that will be made as a result of feedback.
Concluding activity (20 minutes)	• **Individual activity:** learners annotate their work to identify changes that they will make following the discussions.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	16 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • describe functions • understand the various functions • apply functions.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Functions worksheet.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** Learners create a program that multiplies two numbers together and alerts the result.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** demonstrate how to create basic functions that invoke or call an event. • **Individual activity:** learners complete a task-based worksheet that asks them to use functions, function return, function with operators, function used as variables and local variable inside the function. • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others. Learners demonstrate to the class.
Concluding activity (20 minutes)	• **Individual activity:** learners annotate their work to identify changes they will make following the discussions.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	17 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • explain iteration and why it is used • create 'For' loops • create 'While' loops.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • 'For' and 'While' loops worksheet.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** learners develop a JavaScript program that divides one number by another and alerts the results.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** demonstrate iteration for 'For' and 'While' loops. • **Individual activity:** learners complete task-based sheet that asks them to use 'For' loops ('For/in' and 'For/of') and 'While' loops ('While' and 'Do/while'). • **Peer review and feedback:** at different stages during the lesson, ask learners to discuss their work with others.
Concluding activity (20 minutes)	• **Individual activity:** learners annotate their work to identify changes they will make following the discussions.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	18 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • explain arrays • create different arrays • apply iteration with a loop.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Arrays worksheet.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** learners create a function that displays first name and second name when entered in text boxes.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** show how arrays are used to store multiple variables. • **Individual activity:** learners complete a task-based worksheet that asks them to access the elements of an array, change an array element, access full array, use arrays and objects, use array properties and methods, access first and last elements, looping array and add to arrays. • **Peer review and feedback:** at different stages during the two lessons, ask learners to discuss their work with others.
Concluding activity (20 minutes)	• **Plenary activity:** learners annotate their work to identify changes they will make following the discussions.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	19 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • create events that the user can use • create forms using event-driven objects • apply events to websites.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Events worksheet.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Revision activity:** learners list the five design principles and discuss them with the class.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** show how events work using keyboard or mouse inputs. • **Individual activity:** learners complete a task-based worksheet that asks them to create user interface events, keyboard events, mouse events and form events. • **Teacher-led discussion:** learners feed their thoughts back to the whole group, discussing the impact of forms and events used on the audience.
Concluding activity (20 minutes)	• **Individual activity:** learners annotate their work to identify changes that they will make following the discussions.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	20 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • understand how the Document Object Model is used • link to external JavaScript files • link to CSS files • insert script into webpages • configure external files for user needs.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Practice activities and sample files.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** learners list five interactive things that they have seen on a website. Discuss whether they think these interactive features are useful and appropriate.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** show how to insert existing JavaScript programs into webpages. Show how to insert the code in the Head or Body, linking to the external files and configuration where needed. Demonstrate to learners that the Document Object Model (DOM) is a platform that allows programs and scripts to dynamically access and update the content, structure, and style of a document. • **Individual activity**: learners practise inserting different dynamic files into webpages, including slideshows, images, pop ups and tabbed content. • **Teacher-led discussion:** learners feed their thoughts back to the whole group, discussing the impact of the dynamic files on the users. • **Individual activity**: Learners check functionality and compatibility.
Concluding activity (20 minutes)	• **Individual activity**: learners annotate their work to identify changes they will make following the discussions.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	21 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • understand semantic code including how it is used by browsers, assistive technologies and in search engine optimisation • understand non-semantic code • apply them to a website.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • JavaScript quiz.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** learners complete a quiz on JavaScript to test their knowledge.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** recap how semantic elements are used by browsers and assistive technologies. Discuss the difference between semantic and non-semantic elements and when and where you would use them, including the principles of search engine optimisation. • **Small-group/paired activity:** learners investigate each of the elements and create two webpages using a combination of both semantic and non-semantic elements. • **Teacher-led discussion:** learners feed their thoughts back to the whole group, discussing the impact. • **Individual activity:** Learners check functionality and compatibility.
Concluding activity (20 minutes)	• **Individual activity:** learners annotate their work to identify changes they will make following the discussions.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	22 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • apply W3C usability features • apply W3C accessibility features • understand how to validate their websites.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with Notepad++ installed and internet access. • Learners' work from previous lesson.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** Learners create a loop that asks for names and if names match it give an alert message.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** explain web accessibility referring to the W3C. Discuss what makes something accessible to all users. • **Small groups/paired activity:** learners research the W3C looking particularly at accessibility and usability. Encourage learners to focus on a range of disabilities and impairments and the need for websites to provide options and features. • **Teacher-led discussion:** learners feed their thoughts back to the rest of the group, discussing the impact of what they have found on the purpose, audience and quality of websites. Discuss what improvements can be made. • **Small-group/paired activity:** learners continue to work on the webpages from the previous lesson. They experiment with changing the layouts, adding new features that conform to W3C principles and testing or validating the code. • **Individual activity:** Learners check functionality and compatibility.
Concluding activity (20 minutes)	• **Plenary activity:** learners discuss what they have done and annotate their work to identify changes they will make following the discussion.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	23 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • explain why navigation is so important in web design • understand different structures • apply the different types of navigations map.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software installed and internet access. • Scenario about an organisation that needs a website.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** give learners a website and ask learners to draw out a map of how a user might navigate their way through it. Ask learners to compare their maps with others in the class. Do they all agree or are there differences?
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** explain what a navigation map is and why they are needed. Discuss the different types (hierarchal structure, composite structure, linear structure and mesh structure). • **Small-group/paired activity:** given a scenario, learners consider which structure would be most suitable for the organisation's website. • **Group activity (peer review and feedback):** at different stages during the lesson, ask groups to discuss their work with others.
Concluding activity (20 minutes)	• **Plenary activity:** confirm the main learning points of the lesson.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	24 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • understand UI principles • apply UI principles using sketches • explain the impact on their design.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software and internet access. • Wireframes worksheet. • Style guide worksheet.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Starter activity:** describe the difference between navigation maps and types of organisation that uses each type.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** show and discuss the importance of using UI design. Show how page elements exist on key pages. • **Individual activity:** learners complete a task-based worksheet based on a scenario. The worksheet will ask them to describe why wireframes are essential in UI design, state the advantages and disadvantages of these designs, produce wireframes for the given scenario. • **Group activity (peer review and feedback):** at different stages during the lesson, ask learners to discuss their work with others. Learners demonstrate to the class.
Concluding activity (20 minutes)	• **Individual activity:** learners annotate their work to identify any changes they will make following the discussions.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	25 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • describe different files types • compress files • explain the impact of compression on quality.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software installed and internet access. • File types worksheet. • Sample image, video, animation and audio files.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Revision activity:** learners look at three different websites and state five consistent features they find on all three. • **Starter activity:** discuss the most common file types.
Main activities (2 hours 10 minutes)	• **Individual activity:** identify the different CSS rules and how these can be used to create effective page layouts. • **Teacher-led demonstration:** discuss the various file types, the importance of compression and its impact on quality. • **Individual activity:** learners complete a task-based worksheet that asks them to identify and describe different files types for images, identify and describe different file types for video and animation and identify and discuss audio files.
Concluding activity (20 minutes)	• **Plenary activity:** learners discuss their work and annotate their work during the discussion to identify any changes they will make.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	26 (3 hours)

Lesson objectives	At the end of the lesson, learners will be able to: • create various navigation systems • understand the use of fonts and colours.

Resources checklist	• Unit specification. • Smartboard or projector. • Flipchart or similar for learners to record discussions and ideas. • Computers with appropriate software installed and internet access.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	Teaching notes
Starter activity (30 minutes)	• **Revision activity:** learners explain the difference between segment demographics and psychographics. • **Starter activity:** learners identify different navigation systems.
Main activities (2 hours 10 minutes)	• **Teacher-led demonstration:** explain what a navigation system is. Discuss how important they are, show different types of navigation systems and explain the benefits of each one. • **Individual activity:** research the various navigation system, identifying examples of horizontal menu, vertical menu, breadcrumb navigation and button groups. Discuss the impact of the choice of menu on the way in which the user navigates through the website. Set some criteria for learners to measure this against, such as how easy or how difficult the navigation system makes it to browse the website. • **Whole-group discussion:** learners discuss the impact of different navigation systems. • **Teacher-led demonstration:** show how to add text areas and set the properties. • **Small-group/paired activity:** learners investigate the use of text size, fonts, styles and colours on websites. • **Teacher-led discussion:** learners feed back their thoughts to the whole group, discussing the impact of the properties that they have investigated.
Concluding activity (20 minutes)	• **Small-group/paired activity:** groups annotate their research notes from the small-group/paired activity to identify any areas to reinvestigate, following the discussion and peer feedback.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	27–28 (6 hours)

Lesson objectives	At the end of the lessons, learners will have completed the final assessment for Learning aim A.

Resources checklist	• Assessment Workbook. • Computers with appropriate software, word processors, presentation software and access to the internet.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Main activity (6 hours)	• **Final assessment activity:** learners spend 6 hours completing Task 1.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	29–31 (9 hours)

Lesson objectives	At the end of the lessons, learners will have completed the final assessment for learning aim B.

Resources checklist	• Assessment Workbook. • Computers with appropriate software, word processors, presentation software and access to the internet.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Main activity (9 hours)	• **Final assessment activity:** learners spend 9 hours completing Task 2.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	32–39 (24 hours)

Lesson objectives	At the end of the lessons, learners will have completed the final assessment for learning aim C.

Resources checklist	• Assessment Workbook. • Computers with appropriate software, such as Notepad++, installed and access to the internet.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Main activity (24 hours)	• **Final assessment activity:** learners spend 24 hours completing Task 3.

Lesson plan

Qualification	Pearson BTEC Uzbekistan Level 4 Qualifications in Software Development
Unit	Unit 3: Website Development
Lesson number	40 (3 hours)

Lesson objectives	At the end of the lesson, learners will: • know how well they are able to apply the principles of website design and development.

Resources checklist	• Unit specification. • Assessment Workbook. • Marked assessments and teacher feedback. • Feedback questionnaires.
Key: **AS**: Activity Sheet; **TF**: Template Form; **PS**: Presentation Slide	

Activities	**Teaching notes**
Main activities (2 hours 30 minutes)	• **Learner presentation:** learners show their completed websites to each other. • **Group discussion (peer feedback):** learners give each other feedback on their websites. • **Teacher-led discussion:** return marked assessments to learners and go through the assessments in relation to the task briefs. • **Small-group/paired activity:** learners compare their work.
Concluding activity (30 minutes)	• **Individual activity:** learners complete a questionnaire to give their views on the course and the assessment. • **Teacher-led discussion:** discuss how it can be improved.

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