Level 5 Diploma in Database Developer (991) 191 Credits

Unit: Programming the Web using HTML & XML **Exam Paper No.:** 1	**Guided Learning Hours:** 440 **Number of Credits:** 44
Prerequisites: Basic knowledge of computers and file management.	**Corequisites:** A pass or higher in Diploma in Database Administration or equivalence

Aim:

HTML

Learners learn how HTML fits into the web design process, use HTML to format text, insert hyperlinks, place images, and organise pages with tables. The unit covers the basic principles of web page construction, editing and formatting HTML documents. Hypertext Markup Language (HTML) is the language that drives the World Wide Web. HTML is the core computer language used to create web pages. The unit looks at the hundreds of tags used to format and layout the information in a Web page and the specific functions for embedding graphics, audio, video, and interactive documents. The use of frames and forms to create more advanced web pages, make hyperlinks to other pages, make tables, build forms, embed and optimise images is also covered. The unit also covers HTML Elements, HTML Attributes, HTML Headings, HTML Paragraphs, HTML Formatting, HTML Fonts, HTML Styles, HTML Links, HTML Images, HTML Tables, HTML Lists, HTML Forms, HTML Frames, HTML Iframes, HTML Colors, HTML Colornames and HTML Colorvalues.

XML

The purpose of this unit is to expose learners to encoding rules using a markup language. Programming systems these days are using many different technologies; technique and programming languages. XML is a modern effort employed to allow communication between all these different systems. The unit introduces eXtensible Markup Language (XML) and covers the advantages of XML over HTML, the process of switching from HTML to XML specification process and production rules, including the most important XML concepts: well-formed and valid XML, DTD, Namespaces, XML DTDs, XSL tools and resources, XSL style sheets, and the future of XML.

Required Materials: Recommended Learning Resources.	**Supplementary Materials:** Lecture notes and tutor extra reading recommendations.

Special Requirements: This is a hands-on unit, hence use of computers is mandatory.

Intended Learning Outcomes:	**Assessment Criteria:**
HTML	**HTML**
1 How a browser displays a Web page; the structure of the World Wide Web, the basic principles of Web documents and development of a Basic Web Page.	1.1 Design HTML tags and demonstrate how to create a HTML document 1.2 Demonstrate how to view a HTML file using a Web browser 1.3 Explain how to use HTML tags for text, headings, paragraphs, and lists 1.4 Demonstrate how to insert character tags into an HTML document 1.5 Create how to insert an inline graphic image into a HTML document 1.6 Describe how to add special characters to an HTML document 1.7 Demonstrate how to insert horizontal lines into a HTML document.
2 How to add Hypertext Links to a Web Page, the types of hyperlinks, absolute URLs; relative URLs, named anchors and the problem of link maintenance.	2.1 Describe how to create hypertext links between elements within a Web page 2.2 Describe how to create hypertext links between Web pages 2.3 Review basic layout of Web page structures 2.4 Describe how to create hypertext links to Web pages on the Internet

Business & Computing Examinations (BCE)

	2.5 Distinguish between and be able to use absolute and relative pathnames 2.6 Describe how to create hypertext links to various Internet resources, including FTP servers and newsgroups.
3 How to add colors to a Web page, background patterns, images to a Web page, the differences between when to employ the GIF, JPEG and PNG file formats and the use of relative addresses for image files. .	3.1 Demonstrate how HTML handles color 3.2 Describe how to create a color scheme for a Web page 3.3 Demonstrate how to work with font sizes, colors, and types 3.4 Demonstrate how to place a background image on a Web page 3.5 Define colors for a Web page and for specific characters 3.6 Explain how to control the placement and appearance of images on a Web page 3.7 Demonstrate working with client-side image maps
4 The structure of HTML tables, table attributes and how tables can be used to format text and graphics.	4.1 Demonstrate how to create a text table 4.2 Describe how to create a table using the **<table>**, **<tr>**, and **<td>** tags 4.3 Describe how to create table headers and captions 4.4 Define how to control the appearance of a table and table text 4.5 Describe how to create table cells that span several rows or columns 4.6 Describe how to use nested tables to enhance page design
5 How to use Frames in a Web Site and how frames can be used to facilitate Web site navigation.	5.1 Explain the process of creating frames for a Web site 5.2 Describe how to control the appearance and placement of frames 5.3 Describe how to control the behaviour of hyperlinks on a Web page with frames 5.4 Demonstrate using reserved target names to specify a target for a hypertext link 5.5 Describe how to modify the appearance of frame borders 5.6 Describe how to create and implement floating frames.
6 Analysing Web Page Forms and outlining the importance of forms as the only way users can interact with a site.	6.1 Learn about CGI scripts 6.2 Review the various parts of an online form 6.3 Describe how to create form elements 6.4 Describe how to create a hidden field on a form 6.5 Illustrate how to work with form attributes 6.6 Learn how to send data from a form to a CGI script 6.7 Learn how to send form information without using CGI scripts.
7 Cascading Style Sheets (CSS); the format of the CSS file; optimizing and formatting CSS using a variety of different compression settings.	7.1 Describe the history and theory of cascading style sheets 7.2 Describe how to create inline styles, embedded styles, and style sheets 7.3 Describe style precedence and style inheritance 7.4 Demonstrate how to use cascading style sheets to format paragraphs, lists, and headings 7.5 Define document content with the class and id attributes and create styles for them

Business & Computing Examinations (BCE)

	7.6 Describe how to mark document content with the ** ** and **** tags and create styles for them 7.7 Describe how to use cascading styles to design page layout
XML 1 XML, its use, the history, XML goals and how markup language describes the content and structure of data in a document.	**XML** 1.1 Define XML 1.2 Describe the use of XML 1.3 Describe how to construct an XML document 1.4 Describe the advantages of XML 1.5 Define the differences between XML and HTML
2 XML documents; viewing XML files; executing/running XML files and creating a simple XML page.	2.1 Describe the components of an XML document 2.2 Describe XML elements 2.3 Describe XML attributes 2.4 Describe the structure and syntax of XML 2.5 Explain how the tags in an XML describe the meaning and hierarchical structure of data
3 XML Document Type Definition (DTD), the building blocks of DTD, and how to define DTD elements in XML documents.	3.1 Describe DTDs 3.2 Describe DTD entities 3.3 Analyse DTD declarations 3.4 Define XML character notations 3.5 Define internal and extern DTDs
4 XML Schema, declaring namespaces, the structure of an XML Schema and explaining how XML Schemas are used to validate XML.	4.1 Describe XML namespaces 4.2 Define simple-type elements 4.3 Define attribute names for namespace declaration 4.4 Describe how to apply namespace to elements and attributes 4.5 Describe namespace constraints
5 Working with Cascading Style Sheets (CSS) and how the properties used in Cascading Style Sheets (CSS) are similar to those of HTML.	5.1 Explain the history and theory of Cascading Style Sheets 5.2 Demonstrate linking a style sheet to an XML document 5.3 Design a page layout using styles
6 Working with XSLT outlining how XSLT uses XPath to define parts of the source document that should match one or more predefined templates.	6.1 Describe the history and theory of XSL 6.2 Demonstrate how to create an XSLT style sheet 6.3 Demonstrate the syntax of the XPath language 6.4 Demonstrate how to transform an XML document into an HTML file 6.5 Demonstrate creating templates to format sections of the XML document
7 Creating computational stylesheets, working with functions, variables, parameters and working with parses.	7.1 Define how to number nodes 7.2 Demonstrate applying XPath functions such as count() and sum() 7.3 Describe how create formulas using mathematical operators 7.4 Explain working with text nodes and white space 7.5 Demonstrate creating variables and parameters
8 How elements can be constructed into groups in order to control the sequence and occurrence behavior of the elements within the group.	8.1 Describe working with step patterns to create complex node sets 8.2 Identify how to create model templates so that different code can be applied to the same nodes 8.3 Demonstrate accessing node sets using ID attributes and keys

Business & Computing Examinations (BCE)

9 How DOM can be used for accessing, manipulating XML documents allowing DOM programmatically read and manipulation.	8.4 Demonstrate organising elements using *Muenchian grouping* 8.5 Demonstrate accessing secondary source documents 9.1 Describe document object models 9.2 Demonstrate how to create and load a document object 9.3 Describe how to apply an XSLT transformation to a document 9.4 Describe how to use JavaScript to modify the contents of an XML document 9.5 Describe how to use a form to e-mail the contents of an XML document 9.6 Demonstrate using JavaScript to modify the attribute values of a document element 9.7 Demonstrate using JavaScript to pass a value to a style sheet parameter
Methods of Evaluation: A 2½-hour written examination paper with five essay questions, each carrying 20 marks. Candidates are required to answer all questions. Candidates also undertake project/coursework in both Programming the Web using HTML and XML with a weighting of 50% [making a total of 100% for the two].	

Recommended Learning Resources: Programming the Web using HTML & XML

Text Books	**HTML** • HTML, XHTML, and CSS, Sixth Edition (Visual Quickstart Guide) by Elizabeth Castro. ISBN-10: 0321430840 • Build Your Own Website The Right Way Using HTML & CSS by Ian Lloyd. ISBN-10: 0975240293 • The Ultimate HTML Reference by Ian Lloyd. ISBN-10: 0980285887 **XML** • Beginning XML, 4th Edition (Programmer to Programmer). ISBN-10: 0470114878 • New Perspectives on XML, Second Edition, Comprehensive (New Pespectives) (Paperback) by Patrick Carey. ISBN-10: 1418860646 • XML for the World Wide Web (Visual QuickStart Guide) by Elizabeth Castro. ISBN-10: 0201710986
Study Manuals 	BCE produced study packs
CD ROM 	Power-point slides
Software 	Internet Explorer

Business & Computing Examinations (BCE)