

WEBSITE APPLICATION

ISCED UNIT CODE: 0613 551 03A

TVET CDACC UNIT CODE: IT/CU/ICTA/CR/01/6/MA

Duration of Unit: 220 Hours

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Develop Website Application

UNIT DESCRIPTION

This unit covers the competencies required to develop website systems. It involves performing hosting the website, testing the website and maintaining the website.

Summary of Learning Outcomes

Learning Outcomes	Durations (Hours)
1. Perform website Application user need analysis	30
2. Design website application	50
3. Develop website application	60
4. Host the website application	40
5. Test the website application	20
6. Maintain the website application	20
Total Hours	220

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Perform Website User Needs Analysis	1.1 Website user requirements identification 1.1.1 Introduction to Web Programming	• Practical test • Projects • Learner Portfolio of evidence • Oral questioning

	1.1.1.1 Definition of key web terms. 1.1.1.2 History of the Internet, the Web, CSS & HTML 1.1.1.3 Web programming/scripting languages 1.1.1.4 Current trends 1.1.1. Importance of websites 1.1.2. Types of websites 1.1.3. Website design requirements 1.1.1.5 Types of user requirements 1.1.1.5.1 Functional requirements 1.1.1.5.2 Non-functional requirements 1.1.1.6 User requirements identification 1.1.1.7 User requirements analysis 1.2 Website user requirements documentation 1.2.1 User requirements documentation tools 1.2.2 Preparation of user requirements specifications document 1.3 Website user requirements specifications review 1.3.1 Importance of user requirement review	• Interviews • Third party report • Written tests • Case study
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	1.3.2 User requirement review techniques 1.3.3 User requirements specifications validation and verification 1.4 User requirements review process 1.5 Updating user requirements specifications document	
2. Design Website	2.1 Website application design tools 2.1.1 Introduction website design 2.1.1.1 Website design principles 2.1.1.2 Website Design Process 2.1.1.3 User Experience (UX) design 2.1.2 Introduction website design tools 2.1.2.1 Figma 2.1.2.2 WordPress 2.1.2.3 Canvas 2.1.2.4 Wix 2.1.2.5 Adobe Dreamweaver 2.1.3 Factors to consider when selecting design tools 2.1.4 Installation and configuration design tools 2.2 Implementation of website design methods 2.2.1 User-Centered Design 2.2.2 Visual Design 2.2.2.1 Elements of Visual Design 2.2.3 Interaction Design	• Practical test • Projects • Learner Portfolio of evidence • Oral questioning • Interviews • Third party report • Written tests • Case study

	2.2.4 Wireframing and Prototyping 2.3 Development of website application visual hierarchy 2.3.1 Graphical user interface 2.3.2 Hierarchy of Elements 2.3.2.1 Typography 2.3.2.2 Color and contrast 2.3.2.3 Spacing and Layout 2.3.2.4 Reading patterns 2.3.2.5 Size and scale 2.3.2.6 Proximity and repetition 2.3.2.7 Alignment 2.3.2.8 Texture and style 2.4 Creation of website application site map 2.4.1 Importance of site maps for web design and SEO 2.4.2 Types of site maps 2.4.3 Creating visual site maps 2.4.4 Creating website wireframes	
3. Develop The Website	1.1 Creation of web pages 1.1.1 HTML Coding 1.1.1.1 Introduction to HTML5 1.1.1.2 HTML Tags 1.1.1.2.1 Structural elements and attributes 1.1.1.2.2 Formatting HTML documents 1.1.1.2.3 Tables 1.1.1.2.4 Linking Web Pages 1.1.1.2.5 Working with Layouts	• Practical test • Projects • Learner Portfolio of evidence • Oral questioning • Interviews • Third party report • Written tests • Case study

	1.1.1.2.6 Special effects and Animation using HTML5 1.1.1.2.7 Multimedia 1.1.1.2.8 Managing forms 1.1.1.2.9 DOM 1.1.1.2.10 Events 1.1.1.2.11 HTML frameworks (Bootstrap and Tailwind) 1.1.2 Cascading Style Sheets (CSS) 1.1.2.1 Introduction to CSS 1.1.2.2 Various types of styles sheets 1.1.2.3 Inheritance and cascading order 1.1.2.4 Formatting text, fonts, colours and Background 1.1.2.5 Exploring CSS class and ID attributes 1.1.2.6 HTML Tags 1.1.2.7 Block eleven elements 1.1.2.8 Fundamentals of Document Object Model (DOM) 1.1.3 Website Scripting 1.1.3.1 Functions of scripting languages 1.1.3.2 Types of scripting languages 1.1.3.3 Java scripting 1.1.3.3.1 Introduction to JavaScript 1.1.3.3.2 Statements Syntax 1.1.3.3.3 Values & Variables 1.1.3.3.4 Operators	
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	1.1.3.3.5 Statements 1.1.3.3.6 Event Handling 1.1.3.3.7 Timing Events 1.1.3.3.8 Functions and objects 1.2 Website Backend Creation 1.2.1 Database Creation 1.2.2 Introduction to MYSQL 1.2.3 File systems and databases 1.2.4 Relational database Models 1.2.5 SQL 1.2.6 Entity Relationship modelling 1.2.7 Normalization of database tables 1.2.8 Database design 1.2.9 Working with Database Schemas 1.2.10 Create-Read-Update-Destroy (CRUD) 1.2.11 Joins 1.2.12 Aggregate Functions and Groups 1.2.13 Sub Queries 1.3 Website application frontend and backend integration 1.3.1 PHP 1.3.1.1 Importance of PHP 1.3.1.2 Fundamentals of PHP Development 1.3.1.3 Various Data Types 1.3.1.4 Advanced PHP Functions 1.3.1.5 Classes 1.3.1.6 Objects 1.3.1.7 Various Database concepts 1.3.1.8 Cookies and Session Management	
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	1.3.1.9 How to work with forms and system file 1.3.1.10 Error Handling 1.3.1.11 Secure PHP Programming 1.3.1.12 Performance Optimization of PHP Applications 1.3.1.13 Model View Controller (MVC) 1.3.2 JQuery: 1.3.2.1 Introduction to JQuery 1.3.2.2 Selectors 1.3.2.3 JQuery – DOM 1.3.2.4 JQuery Events 1.3.2.5 Ajax 1.3.2.6 UI (User Interface)	
2. Host the Website	2.1 Website application hosting platform 2.1.1 Introduction to website hosting 2.1.2 Types of website hosting services 2.1.3 Factors to consider when selecting a host 2.1.4 Website hosting process 2.2 Server environment setup 2.2.1 Configuring hosting environment (cPanel, Plesk) 2.2.2 Installing web servers (Apache, nginx) 2.2.3 Database set up (MySQL, PostgreSQL) 2.3 Uploading website application files. 2.3.1 Methods of uploading files 2.3.2 Connecting files to the server 2.4 Website server configuration	• Practical test • Projects • Learner Portfolio of evidence • Oral questioning • Interviews • Third party report • Written tests • Case study

	2.4.1 Importance of website server configuration 2.4.2 Setting up virtual hosts 2.4.3 Configuring directory structures and permissions 2.4.4 Managing server files and directories 2.4.5 Implementing SSL/TLS 2.4.6 Firewall and access control configurations 2.4.7 Backup configuration 2.4.8 Setting server monitoring tools	
3. Test The Website	5.1 Website application test plan 3.1.1 Importance of website application testing 3.1.2 Importance of website application test plan 3.1.3 Preparation of website application test plan 5.2 Website application testing techniques selection 3.2.1 Types of website application testing techniques 3.2.1.1 Functionality Testing 3.2.1.2 Black box 3.2.1.3 Regression 3.2.1.4 unit 3.2.1.5 Usability Testing 3.2.1.6 Interface Testing 3.2.1.7 Compatibility Testing 3.2.1.8 Performance Testing 3.2.1.9 Security Testing	• Practical test • Projects • Learner Portfolio of evidence • Oral questioning • Interviews • Third party report • Written tests • Case study.

	3.2.2 Factors to consider when selecting website application testing techniques 5.3 Website application testing 3.3.1 Website application testing tools 3.3.2 Website application testing standards, procedures and user requirements 3.3.3 Preparation of website application test data 3.3.4 Perform website application testing 5.4 Test report development 3.4.1 Importance of website application test report 3.4.2 Website application test report development tools 3.4.3 Preparation of website application test report	
4. Maintain The Website	4.1 Website monitoring 4.1.1 Importance of website maintenance. 4.1.2 Website monitoring tools 4.1.3 Integrate website monitoring tools (Google analytics) 4.1.4 Analysis of website traffic and performance data 4.2 Development of Monitoring report 4.2.1 Importance of Monitoring report 4.2.2 Website monitoring via logging practices 4.2.3 Preparation of Monitoring report 4.3 Fixing website application bugs	• Practical test • Projects • Learner Portfolio of evidence • Oral questioning • Interviews • Third party report • Written tests • Case study.

	4.4 Updating website application 4.4.1 Updating and archiving of website content 4.4.2 Creation of website pages 4.4.3 Website version upgrading 4.4.4 Vulnerability scans and updates 4.5 Backing up Website 4.5.1 Importance of website data back up 4.5.2 Types of website data back up 4.5.3 Website data backup tools	
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Suggested Methods of Instruction

- Presentations and practical demonstrations by trainer
- Guided learner activities
- Research project assignments
- Supervised activities and projects in a workshop
- The delivery may also be supplemented and enhanced by the following, if the opportunity allows:
 - Visiting expert worker from the ICT sector
 - Industrial visits.

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Trainee: Item)
A	Learning Materials			
1.	Textbooks		5 pcs	5:1
2.	Installation manuals			
3.	Charts			
4.	PowerPoint presentations	For trainer's use		

5.	e-Didactics	For trainer's use		
B	Learning Facilities & infrastructure			
6.	Lecture/theory room		1	25:1
7.	Computer Laboratory		1	25:1
C	Consumable materials			
30.	Printing papers		1 ream	1:20
31.	Toners		2 pcs	13:1
32.	Assorted colour of whiteboard markers			
33.	Internet			
D	Tools and Equipment			
1.	Computers		25 pcs	1:1
2.	Projector		1 pc	25:1
3.	Printers		4 pcs	6:1
4.	Flash drives		5 pcs	5:1
5.	1 External Hard drive		5 pcs	5:1
6.	Software suite		5 pcs	5:1
7.	Hosting server		1 pc	25:1

