
Study Guide

Web Programming 271

Academic Year 2024



“Research has shown that it takes 31 days of conscious effort to make or break a habit. That means, if one practices something consistently for 31 days, on the 32nd day it does become a habit. Information has been internalized into behavioral change, which is called transformation.”

Shiv Khera



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Academic Year 2024

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TABLE OF CONTENTS

MODULE DESCRIPTION	4
STUDENT SUPPORT	5
STUDENT RESOURCES	5
PRESCRIBED MATERIAL	5
RECOMMENDED READING	5
STUDENT MATERIAL	6
TECHNOLOGY (HARDWARE OR SOFTWARE) REQUIRED	6
LESSON PLAN OUTLINE	Error! Bookmark not defined.

MODULE DESCRIPTION	
Module Name	Web Programming 271
Module Code	WEB271
Qualification	BIT & BCOMP
NQF Level	7
Duration (weeks)	3
Pre-requisites	WPR171

PURPOSE

The purpose of the course is to introduce interactive and dynamic web design using a programming language. The course covers language-specific details that need to be implemented in order to achieve the desired results. It will also look at how data should be represented for it to be best transmitted between the client and server.

OUTCOMES

Upon successful completion of this module, the student will be able to:

- Demonstrate detailed knowledge of the main areas of dynamic website programming, including an understanding of and the ability to apply the principles of programming to the area of web development.
- Evaluate, select and apply appropriate website development techniques to create and deploy a dynamic website by analysing and modelling requirements.
- Identify, analyse and solve problems by creating dynamic websites that accommodate specified requirements and constraints, based on analysis or modelling or requirements specification.
- Communicate effectively with a variety of audiences through a range of modes and media, in particular to present a clear, coherent and independent exposition of functional websites to IT and/or non-IT personnel via reports or presentations.

STUDENT SUPPORT

Please contact your lecturer for subject-related support. The lecturers presenting this subject are:

- Mr S. Zengeni – zengeni.s@belgiumcampus.ac.za
- Miss M. Magorimbo – magorimbo.m@belgiumcampus.ac.za
- Mr. M. Combrinck - combrinck.m@belgiumcampus.ac.za
- Mr R. Hood – hood.r@belgiumcampus.ac.za
- Mr. P Moila - saula.l@belgiumcampus.ac.za
- [Mr. T.Mkwaira](mailto:Mr.T.Mkwaira@belgiumcampus.ac.za) – mkwaira.t@belgiumcampus.ac.za
- [Mrs E. Shayamano](mailto:Mrs.E.Shayamano@belgiumcampus.ac.za) – shayamano.e@belgiumcampus.ac.za

If the lecturers were unable to assist, you can also contact the cluster head for this subject:

- Ms A. Mundackal – joy.a@belgiumcampus.ac.za

Further student support services are available via the counsellors:

- Lethlabile L. Selamolela – selamolela.l@belgiumcampus.ac.za
- Mathapelo Leshilo – leshilo.m@belgiumcampus.ac.za

ASSESSMENT PLAN			
ASSIGNMENTS/PROJECTS			
Project M1, M2	10 + 30	Project due date:	2024-08-07
		Presentation	2024-08-08
TESTS			
Test 1 weight:	10	Test 1 date:	2024-07-26
Test 2 weight:	20	Test 2 date:	2024-08-02
Summative Test weight:	30	Summative Test date:	2024-08-12

STUDENT RESOURCES

Which resources will be used during this module?

PRESCRIBED MATERIAL

Textbook 1

(Learning made easy) Chris Minnick - JavaScript All-in-One For Dummies-John Wiley & Sons, Inc. (2023)

Location (Library / URL / PDF)

On Moodle

https://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=3585958&site=ehost-live&authtype=sso&custid=ns266672&ebv=EB&ppid=pp_C1

Textbook 2

Paul McFedries - HTML, CSS, & JavaScript All-in-One For Dummies (For Dummies) [Team-IRA] (2023, For Dummies) - libgen.li

Location (Library / URL / PDF)	
STUDENT MATERIAL	
Item	Location
Content on Moodle	The relevant Moodle course
PowerPoint slides	Distributed to students via Moodle
Exercises / Activities	Dispersed throughout the course on Moodle. Some quizzes to be hosted on AssessmentQ.
TECHNOLOGY (HARDWARE OR SOFTWARE) REQUIRED	
Software/Hardware	Details e.g. version to be used (either minimum or required version)
VS-Code Node-js	Any versions from 2022

LESSON PLAN OUTLINE			Resources
Date	Outcomes to be covered / Class Activity / Assessment		
Day 1	Introduction To JavaScript	<ul style="list-style-type: none"> • How websites work (HTML + CSS + JavaScript) • JavaScript Basics and Usage • VS-Code Setup • Running JavaScript (console vs browser) • Intro to Node.js and V8 Engine • JavaScript Basic Input & Output 	<p>Moodle – Lesson 1, Textbook 1- chapter 1 – pages 7-37 Textbook 1- chapter 2 – pages 41-53</p> <p>Slides available on MoodleExercises</p>
	Variables	<ul style="list-style-type: none"> • Variable variables (declare, initialize, use and naming using let, const) • Falsy Values 	
	Datatypes	<ul style="list-style-type: none"> • Datatypes • JavaScript is loose and dynamic. Passing by value • Strings data types • Numbers data types • BigInt data types • Boolean data types • Undefined datatypes • Symbol datatypes 	

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Day 4	Arrays	<ul style="list-style-type: none"> • Creating Arrays <ul style="list-style-type: none"> ○ Using Array () constructor ○ Using Literal notation • Accessing Array elements • Adding or removing elements <ul style="list-style-type: none"> ○ Push ○ Pop ○ Shift ○ Unshifting ○ Slicing ○ splicing • Spread arrays • Iterating an array • Searching an array • Transforming an array 	<p>Moodle – Lesson 4, Textbook 1 – chapter 5 pages 91-102</p> <p>Exercises</p>
Day 5	Class Test 1	Covering week 1 content	
Day 6	Objects	<ul style="list-style-type: none"> • The basics of Objects • Creating Objects <ul style="list-style-type: none"> ○ literal notation ○ constructor function ○ Object.create() • Modifying objects Using the dot notation • Using square brackets notation • Comparing and copying Objects • Understanding Prototypes • Deleting Objects Properties 	<p>Moodle – Lesson 6, Textbook 1 – chapter 7 pages 125-138</p> <p>Exercises</p> <p>Slides available on Moodle</p>
Day 7	DOM-1	<ul style="list-style-type: none"> • Introduction the HTML DOM • Selecting element nodes with: <ul style="list-style-type: none"> ○ getElementById(), ○ getElementsByClassName() ○ getElementsByTagName() ○ querySelector() 	<p>Moodle – Lesson 7 Textbook 1 – chapter 11 pages 249 -257</p> <p>Exercises</p> <p>Slides available on Moodle</p>

		<ul style="list-style-type: none"> ○ Selecting Within Elements • Dynamically referencing DOM element using <code>textContent</code> 	
Day 8	DOM-2	<ul style="list-style-type: none"> • Creating Elements <ul style="list-style-type: none"> ○ Creating a <code><p></code> Element ○ Creating list Elements ○ Creating a table Elements ○ Using <code>innerHTML</code> 	Slides available on Moodle
Day 9	Revision Mock Test	Revision Mock Test	Revision Mock Test
Day 10	Class Test 2	Covering week 2 content	
Day 11	Events-1	<ul style="list-style-type: none"> • Listening for Events • Using <code>addEventListener()</code> <ul style="list-style-type: none"> ○ Click Event ○ Hover Event ○ Form Submission Event 	Slides available on Moodle
Day 12	Events-2	<ul style="list-style-type: none"> • Adding Multiple Event Listeners • Understanding JavaScript Runtime Model • The event loop 	Slides available on Moodle
Day 13	Asynchronous JavaScript	<ul style="list-style-type: none"> • Callbacks • Asynchronous • Promises • Async await • Revision 	Slides available on Moodle
Day 14	Project Presentation	Project Presentation	

Day 15	Summative Test	Summative Test	
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