Module: Web Programming 281

Module name:	Web Programming 281
Code:	WPR281
NQF level:	6
Type:	Core – Bachelor of Computing (all streams)
Contact time:	48 hours
Structured time	8 hours
Self-directed	64 hours
Notional hours:	120 hours
Credits:	12
Prerequisites:	WPR181, PRG181

Purpose

The purpose of the course is to introduce interactive and dynamic web design by incorporating a programming language into a web page. 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 in particular to analyse and model requirements and constraints for the purpose of designing and implementing a dynamic website that is compatible with a range of different channels.
- 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.

Assessment

Assessment is performed using a variety of instruments:

- Continuous evaluation of theoretical work through one written assignment, one project, two formative assessments, and a summative test.
- Continuous evaluation of classwork, whereby the student must create and deploy a solution according to specifications.
- Final assessment through a written examination.

Teaching and Learning

Learning materials

- Presentation notes and hand-outs
- Web Programming: JavaScript - IT Without Frontiers

Additional Material

- 🕮 York, R. (2015), *Web Development with jQuery*. John Wiley & Sons. ISBN: ISBN: 978-1-118-86607-8.
- 🕮 Haverbeke, M. (2018) *Eloquent JavaScript 3rd Edition*. No Starch Press.
- 🕮 Elliot, E. (2014). *Programming JavaScript Applications*. O'Reilly Media, Inc. ISBN: 9781491950296.

Learning activities

The teaching is a combination of the presentation of practical and theoretical concepts, and exercises and discussions. It is practice-oriented, with two mandatory assignments which must be completed during the course.

Notional learning hours

Activity	Units	Contact Time	Structured Time	Self-Directed Time
Lecture		40.0		28.0
Formative feedback		5.0		
Project	1	3.0		9.0
Assignment	1			3.0
Test	3		6.0	11.0
Exam	1		2.0	13.0
		48.0	**8.0**	**64.0**

Syllabus

- Fundamentals of web programming including the use of variables, decision constructs and looping structures.
- Object representation of data.
- Creating dynamic websites through the application of functional programming in web development.
- Introduction to asynchronous web programming in JavaScript.
- Using libraries to extend web applications that include jQuery.