Module: Web Programming 252

Module name:	Web Programming 252
Code:	WPR252
NQF level:	6
Type:	Fundamental – Diploma in Information Technology (Software Development stream)
Contact Time:	48 hours
Structured Time:	8 hours
Self-directed Time	54 hours
Notional hours:	110 hours
Credits:	11
Prerequisites:	WPR251

Purpose

The purpose of this course is to teach the student how to use a framework when building a web application that uses a data repository to persist its state. The course will also equip the student with asynchronous programming skills.

Outcomes

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

- Demonstrate detailed knowledge of the core area of web development frameworks, including an understanding of and the ability to apply the principles of programming to the area of web development
- Evaluate, select and use appropriate website development techniques in particular to use the features of some framework for the purpose of designing and deploying 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 a project, two formative assessments, and a summative test.
- Continuous evaluation of practical work, whereby the student must create and deploy a website.
- Final assessment through a written examination.

Teaching and Learning

Learning materials

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

Additional Material

- 🕮 Wilken, J. (2018). *Angular in Action.* Manning. ISBN 9781617293313.
- 🕮 Karpov, V., Netto, D. (2015). *Professional AngularJS*. Manning. ISBN: 978-1-118-83207-3

Learning activities

The teaching is a combination of the presentation of practical and theoretical concepts, and exercises and discussions. It is practice-oriented, with a mandatory assignment and project which must be completed during the course. The course also includes a component of research, and the research will need to be presented during class in a formal session.

Notional learning hours

Activity	Units	Contact Time	Structured Time	Self-Directed Time
Lecture		40.0		24.0
Formative feedback		5.0		
Project	1	3.0		6.0
Assignment				
Test	3		6.0	11.0
Exam	1		2.0	13.0
		48.0	**8.0**	**54.0**

Syllabus

- An exploration of the architecture of a web framework.
- Comparison of frameworks, and their suitability for some business problem.
- Setting up a project using a framework, for example Angular, Node and Express.
- Installing and configuring dependencies.
- Concepts of directives and data binding within a framework.
- Fundamentals of routing and navigation within a framework.
- An overview of web services and how web applications use data.
- Integrating databases with web applications.
- Integrating external libraries.
- A consideration of security aspects in a web application.
- Deploying a web application.