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Title: ADVANCED WEB DEVELOPMENT
Status: Definitive
Code: **5070COMP** (119652)
Version Start Date: 01-08-2016

Owning School/Faculty: Computer Science
Teaching School/Faculty: Computer Science

Team	Leader
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Academic Level: FHEQ5 **Credit Value:** 24 **Total Delivered Hours:** 72

Total Learning Hours: 240 **Private Study:** 168

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24
Practical	48

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Individual Prototype Development	60	
Report	AS2	Group-based Development	40	

Aims

To present the concepts, methods and techniques used in the development and

deployment of web applications and services.

To develop the concepts of multi-tier web application development, including: server-side programming, database connectivity and media rich client-side interface development for the commercial enterprise.

To introduce wider concepts of web applications such as: legal issues, server hardware and system optimization.

Learning Outcomes

After completing the module the student should be able to:

- 1 Explain the architectural make-up of web applications: multi-tier web-based application model as well as the Internet, Intranet and Extranet architectural models of deploying web services; especially with regard to the security implications of each.
- 2 Develop a moderately sized media rich multi-tier web solution from a given set of requirements and data tier solution.
- 3 Iteratively develop, as a team, a larger user evaluated media rich multi-tier web solution for a given commercially oriented scenario that utilises local and external data sources.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Prototype Development	1	2
Group-based Development	3	

Outline Syllabus

- Anatomy of a Web Application: Multi-tier Models, Client, Server and Service Internet, Intranet and Extranet Architectures.*
- The Lifecycle of a Web Application: Process, Deployment and Maintenance.*
- The Data Tier: Databases, SQL and Queries.*
- The Processing Tier: Language, Logic, Media Generation and Information.*
- The Client Interface Tier: HTML & CSS, Data Storage and Update, Interface, Media and Interaction.*
- Security in Web Applications: Internet, Web and Application Layer Security, Attacks.*
- Information System: Users, Roles, Tasks and Information.*
- Analysis and Design Methods: HCI and Usability, Agile Development Methods.*
- Testing Web Applications: Automated Tools, Stress Testing and User Evaluation.*
- Legal Issues of Web Sites/Applications.*
- Optimisation Issues: Load Balancing, Connection Pooling, Virtualisation, Data Compression and Database Optimisation.*

Learning Activities

Lectures will typically include theoretical and practical components, which will prepare the student for the follow up guided lab session. Practical components will cover: web application development, system configuration and the use of media rich content.

Notes

This module provides the student with the concepts, methods, techniques and experience to analyse, design and develop media rich interactive multi-tier web-based applications.