Module 10: Software Engineering for Web Applications

<table>
<thead>
<tr>
<th>Stage</th>
<th>1</th>
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<tbody>
<tr>
<td>Semester</td>
<td>2</td>
</tr>
<tr>
<td>Module Title</td>
<td>Software Engineering for Web Applications</td>
</tr>
<tr>
<td>Module Number/Reference</td>
<td>5</td>
</tr>
<tr>
<td>Module Status (Mandatory/Elective)</td>
<td>Mandatory</td>
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<tr>
<td>Module ECTS credit</td>
<td>5</td>
</tr>
<tr>
<td>Module NFQ level (only if applicable)</td>
<td>8</td>
</tr>
<tr>
<td>Pre-requisite Module Titles</td>
<td>None</td>
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<td>Co-requisite Module Titles</td>
<td>None</td>
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<tr>
<td>Is this a capstone module? (Yes or No)</td>
<td>No</td>
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</table>
| List of Module Teaching Personnel | Mr Ruairi Murphy  
Mr Pat Hayes |

<table>
<thead>
<tr>
<th>Contact Hours</th>
<th>Non-contact Hours</th>
<th>Total Effort (Hours)</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>Practical</td>
<td>Tutorial</td>
</tr>
<tr>
<td>24</td>
<td>12</td>
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Allocation of Marks (Within the Module)

<table>
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<tr>
<th>Percentage contribution</th>
<th>Continuous Assessment</th>
<th>Project</th>
<th>Practical</th>
<th>Final Examination</th>
<th>Total</th>
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Intended Module Learning Outcomes

On successful completion of this module learners will be able to:

1. Demonstrate an advanced understanding of how the web works, both on the client and server side.
2. Demonstrate an advanced knowledge of client-side web standards technologies (HTML, CSS)
3. Understand and demonstrate the importance of research and pre-planning in designing and building web applications
4. Design and build dynamic database-driven standards-compliant web sites with HTML, CSS, PHP and MySQL
Module Objectives

This module introduces learners to the fundamental concepts behind building standards-compliant dynamic database driven web applications. They are introduced to the core technologies behind client-side web development (HTML, CSS) before exploring server-side development with PHP and MySQL. Learners design and produce a dynamic, database-driven web application using these methods.

Module Curriculum

Web Architecture
- The Internet
- TCP-IP
- HTTP
- Mark-up Languages
- Server-Client Relationship
- Security

Web Application Development
- Web Standards
- HTML5
- CSS
- Mobile Applications
- Responsive Web Design

UI Design
- Usability
- Interface Design
- User Experience
- User-Centred Design
- Research
- User Analysis
- Wire-framing
- Story-boarding
- Design Principles

Web Application Development
- Web architecture
- Client-Server Relationships
- Three-tier applications
- Web Applications
- GET/POST
- Security

**Server-side Programming**
- Web scripting (PHP)
- processing form data
- validation
- state management (cookies/sessions)
- Security

**Integrating Databases**
- Database connectivity
- Security

**Reading lists and other learning materials**
This module draws heavily on online texts and materials.

**Recommended reading**

**Secondary reading**
Saffer, D., Designing for Interaction (2nd Edition), New Riders, 2009

**Web Resources**
http://www.webplatform.org/
http://www.codecademy.com/

**Module Learning Environment**

**Accommodation**
Lectures are carried out in class rooms / lecture halls in the College. Lab tutorials are carried out in computer labs throughout the Campus. All have the language software required to deliver the programme.

**Library**
All learners have access to an extensive range of physical and electronic (remotely accessible) library resources. The library monitors and updates its resources on an on-going basis, in line with the College’s Library Acquisition Policy. Lecturers update
reading lists for this course on an annual basis as is the norm with all courses run by Griffith College.

Module Teaching and Learning Strategy

The module is delivered through a combination of lectures, tutorials and practical lab sessions. The lectures cover the fundamental concepts behind the web, how it works, client-side and server-side web development. In addition to this, lectures cover various topics related to web design, including research, planning and design.

Tutorials are Lab-based and are used to develop the learners understanding of these ideas and for practical implementation of server-side programming and database applications and projects, completing short and more complex web development assignments.

Module Assessment Strategy

The module assessment consists of a short assignment, a group project and a final examination.

<table>
<thead>
<tr>
<th>Element No</th>
<th>Weighting</th>
<th>Type</th>
<th>Description</th>
<th>Learning Outcome Assessed</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>50%</td>
<td>Assignment</td>
<td>Learners will develop a series of small web projects, both client-side and a simple database backed server-side application.</td>
<td>1,2,4</td>
</tr>
<tr>
<td>2</td>
<td>50%</td>
<td>Project</td>
<td>Learners will plan, design and develop a complex database-backed dynamic web application. Having been given a basic outline and feature list, learners should research and plan their data model and application structure, and develop a specification documentation. Then learners will develop this project to completion.</td>
<td>1,2,3,4</td>
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