

Pre-Requisite Modules code(s)	Co-Requisite Modules code(s)	ECTS Credits	Module Code	Module Title
CMPU2010, CMPU1025	None	5	CMPU3047	Web Development and Deployment

8.3.8. Web Development and Deployment

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Module Description:

This course is a continuation and elaboration of the Web development concepts introduced in TECH2401, with students using server-side web technologies to deliver web-based solutions to standard problems.

Module aims:

- To enhance the web development skills developed in TECH2401 Internet Services & Web Development.
- To develop skills needed to implement more advanced Web applications that use server-side technologies.
- To introduce students to the concept of Model-View-Controller (MVC) architecture in the context of web development.
- To introduce students to framework-driven development.
- To familiarise students with XML (Extensible Markup Language) and its potential applications in the context of web services.
- To introduce students to the use of Ajax (Asynchronous JavaScript and XML) and its uses in the development of interactive web applications.

Learning Outcomes:

On completion of the module, students should be able to:

- Demonstrate a broad knowledge and have practical experience of a range of server side technologies.
- Develop dynamic Web applications that use server side processing.
- Develop Web applications that access, store and update information in databases.
- Demonstrate familiarity with the MVC architecture and framework-driven development through the creation of web applications using these concepts.
- Understand the purpose of XML and be capable of validating and manipulating XML documents.
- Develop simple web services using XML.
- Demonstrate familiarity with Ajax technologies and their uses in web development.
- Understand basic security requirements for web applications and how they might be facilitated.

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Learning and Teaching Methods:

The learning and teaching methods will be the combination of lectures and laboratory work.

Module content:

- Server-side technologies: An overview of the various server side technologies, including Java Servlets, JSP, ASP, etc.
- Web Development:
- Model-View-Controller Architecture.
- Introduction to frameworks and framework-based implementation of MVC architecture.
- Introduction to dynamic programming using Ruby and JavaScript.
- Development of applications using a web framework (Ruby on Rails).
- Use of Ajax technologies in web development.
- Introduction to XML:
- XML syntax and document structure,
- notion of schemas and validation,
- document navigation using XPath and XQuery,
- transformations using XSLT,
- XML-based web services.
- Security threats and counter-measures – code injection, cross-side scripting, SSL.

Module Assessment:

Student learning will be evaluated via continuous assessment comprising two major assignments which will be demonstrated in class, and a number of minor assignments.

Essential Reading List:

Ruby, Thomas and Hansson, 2009, Agile Web Development with Rails, 3rd Edition, Pragmatic Bookshelf.

Thomas, 2009, Programming Ruby, 3rd Edition, Pragmatic Bookshelf.

Vohra and Vohra, 2006, Pro XML Development with Java Technology, Apress.

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Further Details:

Two hour lectures, one hour lab, one hour tutorial. To be delivered in one semester

Date of Academic Council approval