CO4215 Advanced Web Technologies

Credits: *15* **Convenor:** *Dr. S Reiff-Marganiec* **Semester:** *1st*

Prerequisites: *none*

Lectures:	*17*	*hours*			
Surgeries:	*3*	*hours*	**Independent Study:**	*74.5*	*hours*
Laboratories:	*18*	*hours*			

Assessment: *Coursework: 40% + Two hour exam in January: 60%*

Subject Knowledge

Aims The aim of this course is to teach the students the concepts, technologies and techniques for creating large-scale destributed software system using service oriented computing and cloud applications.

Learning Outcomes At the end of the course the student should be able to:

- define the fundamental ideas and standards underlying Web Service Technology;
- define the fundamental principles for cloud applications;
- discuss concepts at the frontier of industrial practice and emerging standards;
- differentiate the major frameworks allowing to develop web services and cloud applications and assess their suitability for specific usage scenarios;
- explain the link between the concepts of services and business processes and discuss and critique related standards;
- develop busines processes using the Workflow foundation.
- develop and deploy web services and cloud applications using appropriate Microsoft technologies.

Methods Lectures, tutorials and practical sessions together with course notes, recommended reading, worksheets and some additional handouts.

Assessment Assessed coursework; traditional written exam

Skills

Aims To teach students problem solving skills.

Learning Outcomes Students will be able to: solve abstract and concrete problems (both routine seen, and simple unseen).

Methods Class sessions together with worksheets.

Explanation of Prerequisites

Module Description Service oriented Computing and its predominant implementation as Web Services are at the forefront of industrial practice in software engineering. There are two major technologies supporting WS development: Microsoft's .net and Java based technologies. In this course we will use the former. One crucial aspect of SoA is the marrying of IT artefacts with business processes and objectives, so part of the course will concentrate on business processes and their relation to services. Finally, service applications need to be executed in a scalable fashion and cloud computing provides one possible deployment architecture. We will cosnider the main business drivers and advantages for adopting cloud computing and study details of some cloud computing platforms with practical exercises based on the Azure platform.

Syllabus Topics to be covered include fundamental ideas and standards underlying Web Service Technology, concepts at the frontier of industrial practice, emerging standards and business processes and cloud computing.

Reading List

[B] Papazoglou, *Web Services: Principles and Technology (2nd edition); ISBN: 978-0-273-73216-7,* Prentice Hall, 2012.

[B] Alonso, Casati, Kuno and Machiraju, *Web Services: Concepts, Architectures and Applications; ISBN: 3540440089,* Springer, 2004.

[B] Cerami, *Web Services Essentials; ISBN: 0596002246,* O'Reilly,2002.

Resources Course notes, web page, study guide, worksheets, handouts, lecture rooms with two OHPs, past examination papers, past tests.

Module Evaluation Course questionnaires, course review.