ITEC833

Web Services

S1 Evening 2014

Computing

Contents

General Information

Unit convenor and teaching staff
Unit Convenor
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Credit points
4

Prerequisites
COMP344 or COMP348 or ISYS303

Corequisites

Co-badged status

Unit description
This unit covers the standards and technologies that drive modern web servers in providing B2C and B2B services. Topics include the design of and migration to SOAP-based services, webserver toolkits, Java server technologies, J2EE, message-oriented middleware, and server-side XML integration.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

Understand the fundamental technologies in the web services technology stack.

Evaluate current web services technology.

Design and implement web services.

Assessment Tasks

Name	Weighting	Due
Biweekly Tasks	10%	Every Two Weeks
Essay	10%	Week 6

Name	Weighting	Due
Practical Assignment	30%	Week 11
Final Examination	50%	Exam Period

Biweekly Tasks

Due: **Every Two Weeks**
Weighting: **10%**

There will be 6 **biweekly tasks**. Each task is worth 2 marks, and the sum of marks will be capped to 10. In practice this means that you may skip one submission and still get full marks. Each task will have an early submission check-point for feedback. This will give you an opportunity to improve on your submission. The submission deadline is firm and no late submissions will be assessed.

On successful completion you will be able to:

- Understand the fundamental technologies in the web services technology stack.
- Evaluate current web services technology.

Essay

Due: **Week 6**
Weighting: **10%**

There will be a **short essay** describing a web service. The topic is open. We will give a list of example topics and the student will submit a proposal. After the final submission the student will give a 10-minute presentation + question time. The schedule of each stage is:

1. Proposal: week 2, with possibility of resubmission on week 3.
2. Essay submission: week 6. Worth 7 marks with 1 mark deduction per day late.
3. Essay presentation: from week 8, to be advised. Worth 3 marks.

On successful completion you will be able to:

- Evaluate current web services technology.

Practical Assignment

Due: **Week 11**
Weighting: **30%**

The **group assignment** will be based on the design and implementation of a transaction-based web service that uses service composition. There will be checkpoint submissions for the detailed proposal and background documentation. The overall schedule will be:

1. One-page proposal: Week 7
2. Background documentation: Week 8. Worth 5 marks, 1 mark deduction per day of late submission.
3. Final submission: Week 11. Worth 25 marks, 5 marks deduction per day late.

On successful completion you will be able to:

- Design and implement web services.

Final Examination

Due: **Exam Period**
Weighting: **50%**

The **final examination** will be three hours exam and it will test the theoretical concepts of the unit and will not focus on implementation details.

In the final exam, you will have multiple choice questions, short answer questions and long answer questions.

No early examinations for individuals or groups of students will be set. All students are expected to ensure that they are available until the end of the teaching semester, that is the final day of the official examination period. The only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances you may wish to consider applying for special consideration.

On successful completion you will be able to:

- Understand the fundamental technologies in the web services technology stack.
- Evaluate current web services technology.

Delivery and Resources

CLASSES

ITEC833 is taught via lectures and mixed tutorials / practical sessions in the laboratory. Lectures are used to introduce new material, give examples of the use of programing methods and techniques and put them in a wider context. While lectures are largely one to many presentations, you are encouraged to ask questions of the lecturer to clarify anything you might not be sure of. The mixed tutorials / practical sessions will are designed to be more interactive, exercise-driven sessions which give you the opportunity to interact with your peers and with a tutor who has a sound knowledge of the subject. In each class, you will be given a number of problems to work on; it is important that you keep up with these problems as doing so will help you understand the material in the unit and prepare you for the work in assignments.

On average, every two weeks, you will attend three hours of lectures, three hours of mixed class (tutorials and practicals combined in a single session). For details of days, times and rooms consult the timetables webpage.

Note that the mixed class commence in week 2.

Each week you should:

1. Print out the lecture notes **before** going to the lecture.
2. Attend lectures, take notes, ask questions.
3. Read the mixed class specification **before** going to the session.
4. Attend the mixed class session, do as many of the exercises as you can and seek feedback from the tutor on your work.
5. Read appropriate sections of the text, add to your notes and prepare questions for your lecturer or tutor.
6. Submit the next biweekly task checkpoint or final submission.
7. Work on any assignments that have been released.

Lecture notes will be made available before classes but these notes are intended as an outline of the lecture only and are not a substitute for your own notes or the textbook.

Assignment (Essay and Project) Submission

The submission of all assessment tasks is through iLearn.

The due date will be specified clearly when the assessment task is out.

There will be no extension for submission except under special consideration

REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

The textbook for ITEC833 used this semester is:

- Papazoglou, M., (2013) Web Services and SOA: Principles and Technology, 2nd Ed, Pearson, ISBN 978-0-273-73216-7.
- There is also a companion website provided by the publisher. This site contains links to example material and more.

Additional reading that you may find useful for this unit:

- S. Chatterjee & J. Webber , *Developing Enterprise Web Services: An Architect's Guide*, PTR Prentice Hall, 2004. ISBN: 0-13-140160-2
- Paul A. Watters , *Web Services in Finance*, First Edition, Apress, 2004. ISBN: 1-59-059435-5
- Kiet T. Tran, Introduction to Web Services with Java, 1st Edition, 2013. ISBN: 978-87-403-0509-8

TECHNOLOGY USED AND REQUIRED

Technology

The main programming language used is Java. Prior knowledge of Java is recommended but practical knowledge of a modern programming language like C++, or .NET languages are helpful if you are not familiar with Java.

Several tools and software libraries would be used in the class. You would be introduced to them during the class.

Students are also expected to make use of MS Word, MS Excel and MS Powerpoint (or equivalent).

Discussion Boards

There will be several forums created on iLearn, general ones for the unit and specific ones for the assessed tasks and assignments. Students are encouraged to post questions and discuss in these forums on iLearn.

Unit Schedule

The final schedule may change slightly. Refer to the academic calendar for the dates of the weeks.

1 8 Mar (1:00 pm)	Web Services Overview XML	Chapters 1, 2 Chapter 3
2 15 Mar	SOAP WSDL, UDDI	Chapter 4 Chapters 5, 6
3	No classes	
4 29 Mar	Service-oriented Architectures	Chapters 7, 8
5	No classes	
6 12 Apr	Service Transactions	Chapters 9, 10
7	No classes	

8 10 May	Security	Chapters 11, 12
9	No classes	
10 24 May	Semantics Business Protocols	Chapter 13 Chapter 14
11	No classes	
12 7 Jun	Web Development Life Cycle Wrap Up - Review	Chapter 15, 16
13	No classes	

Learning and Teaching Activities

lecture

Lectures

mixed-class

Mixed class tutorials and practicals

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy.html

Grading Policy http://mq.edu.au/policy/docs/grading/policy.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://informatics.mq.edu.au/help/.

When using the University's IT, you must adhere to the Acceptable Use Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Understand the fundamental technologies in the web services technology stack.
- Design and implement web services.

Assessment tasks

- Biweekly Tasks
- Essay
- Practical Assignment
- Final Examination

Learning and teaching activities

- Lectures
- Mixed class tutorials and practicals

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

- Understand the fundamental technologies in the web services technology stack.
- Evaluate current web services technology.
- Design and implement web services.

Assessment tasks

- Essay
- Practical Assignment
- Final Examination

Learning and teaching activities

- Lectures
- Mixed class tutorials and practicals

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

Learning outcomes

- Evaluate current web services technology.
- Design and implement web services.

Assessment tasks

- Biweekly Tasks
- Essay

Learning and teaching activities

- Lectures
- Mixed class tutorials and practicals

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcome

- Evaluate current web services technology.

Assessment tasks

- Essay
- Final Examination

Learning and teaching activities

- Lectures
- Mixed class tutorials and practicals

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcome

- Understand the fundamental technologies in the web services technology stack.

Learning and teaching activities

- Lectures

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

- Evaluate current web services technology.
- Design and implement web services.

Assessment tasks

- Essay
- Practical Assignment

Learning and teaching activities

- Lectures
- Mixed class tutorials and practicals

Standards

The following table shows an indication of achievements required corresponding each final grade relative to each learning outcome. The standards of a level also include the standards of a lower level. For example, the standards of a HD level includes the standards of P, CR and D.

In general, a P standard shows knowledge of the core aspects of the learning outcome. A Cr/D standard shows ability to draw inferences that are not explicitly made in the course. A HD standard shows a comprehensive proficiency in all matters related with the learning outcome.

Where applicable, more specific versions of the requirements will be provided with the assessment task descriptions.

	Discuss the key components of a web service with details, reasoning the necessity and importance of each component.	Provide a deep and insightful evaluation of a range of web services technologies.	Demonstrate proficiency in the design and implementation of all aspects of a web service.

	Discuss the key components of a web service with details, reasoning importance of each component	Discuss and provide basic insights of a range of web services technologies.	Demonstrate proficiency in the design and implementation of most aspects of a web service.
	Describe the key components of a web service with details, showing an understanding of the role of each component.	Discuss and compare web service technologies.	Design and implement a web service capable of performing the usual range of functionality.
	Provide short descriptions of the key components of a web service.	Describe a current key web service technology in detail.	Design and implement the basic functions of a web service.

At the end of the semester, you will receive a grade that reflects your achievement in the unit

- **Fail (F)**: does not provide evidence of attainment of all learning outcomes. There is missing or partial or superficial or faulty understanding and application of the fundamental concepts in the field of study; and incomplete, confusing or lacking communication of ideas in ways that give little attention to the conventions of the discipline.
- **Pass (P)**: provides sufficient evidence of the achievement of learning outcomes. There is demonstration of understanding and application of fundamental concepts of the field of study; and communication of information and ideas adequately in terms of the conventions of the discipline. The learning attainment is considered satisfactory or adequate or competent or capable in relation to the specified outcomes.
- **Credit (Cr)**: provides evidence of learning that goes beyond replication of content knowledge or skills relevant to the learning outcomes. There is demonstration of substantial understanding of fundamental concepts in the field of study and the ability to apply these concepts in a variety of contexts; plus communication of ideas fluently and clearly in terms of the conventions of the discipline.
- **Distinction (D)**: provides evidence of integration and evaluation of critical ideas, principles and theories, distinctive insight and ability in applying relevant skills and concepts in relation to learning outcomes. There is demonstration of frequent originality in defining and analysing issues or problems and providing solutions; and the use of means of communication appropriate to the discipline and the audience.
- **High Distinction (HD)**: provides consistent evidence of deep and critical understanding in relation to the learning outcomes. There is substantial originality and insight in identifying, generating and communicating competing arguments, perspectives or problem solving approaches; critical evaluation of problems, their solutions and their implications; creativity in application.

Your final grade depends on your performance in each part of the assessment. For each task,

you receive a mark that combines your standard of performance regarding each learning outcome assessed by this task. Then the different component marks are added up to determine your total mark out of 100. Your grade then depends on this total mark and your overall standards of performance.

In particular, in order to pass the unit, you must

- Have satisfactory performance in the final examination. And
- Have performed satisfactorily in the non-exam assessment components, including assessed tasks, essay and group assignment.

This means that you may fail the unit if you do not submit satisfactory submissions for the assignments or do not perform satisfactorily in the exam.

Department of Computing expectations are that students have to perform satisfactorily in the final exam as well as in their internal work/assignments.

Obtaining a grade higher than a Pass (P) in this unit will require a student to obtain (in addition to the above):

- The required total number of marks (Credit - 65, Distinction - 75, High Distinction - 85).