ITEC833
Web Services
S1 Evening 2015
Dept of Computing

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General Information

Unit convenor and teaching staff
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Oldooz Dianat
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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://students.mq.edu.au/important-dates](https://students.mq.edu.au/important-dates)

Learning Outcomes

1. Understand the fundamental technologies in the web services technology stack.
2. Evaluate current web services technology and applications.
3. Design and implement a web service.

Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biweekly Tasks</td>
<td>10%</td>
<td>Every Two Weeks</td>
</tr>
<tr>
<td>Essay</td>
<td>10%</td>
<td>Week 6</td>
</tr>
</tbody>
</table>

https://unitguides.mq.edu.au/unit_offerings/44748/unit_guide/print
<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical Assignment</td>
<td>30%</td>
<td>Week 11</td>
</tr>
<tr>
<td>Final Examination</td>
<td>50%</td>
<td>Exam Period</td>
</tr>
</tbody>
</table>

**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.

This Assessment Task relates to the following Learning Outcomes:

• Understand the fundamental technologies in the web services technology stack.
• Evaluate current web services technology and applications.

**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 10-15 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.

This Assessment Task relates to the following Learning Outcomes:

• Evaluate current web services technology and applications.

**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.

This Assessment Task relates to the following Learning Outcomes:
• Design and implement a web service.

Final Examination
Due: Exam Period
Weighting: 50%

The final examination will test the theoretical concepts of the unit and will not focus on implementation details.

This Assessment Task relates to the following Learning Outcomes:
• Understand the fundamental technologies in the web services technology stack.
• Evaluate current web services technology and applications.

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 week, you will attend two hours of lectures, one hour of mixed class (tutorials and practicals combined in a single session). For details of days, times and rooms consult the timetables webpage.

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.

Note that the mixed class commences in week 2, and continues in weeks 4, 6, 8, and so on. Each mixed class has two hours.

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 if there is one, 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.

**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:

- 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:


**TECHNOLOGY USED AND REQUIRED**

Technology

The main programming languages used are Python and Java. Prior knowledge of Python and Java is not required but practical knowledge of a modern programming language like Ruby or .NET languages are required if you are not familiar with Python and 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**

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecturer</th>
<th>Topic</th>
<th>Reading</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Yan</td>
<td>Web Services Overview</td>
<td>Chapters 1, 2</td>
</tr>
<tr>
<td>2</td>
<td>Yan</td>
<td>XML</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>3</td>
<td>Yan</td>
<td>SOAP</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>4</td>
<td>Oldooz</td>
<td>WSDL, UDDI</td>
<td>Chapters 5, 6</td>
</tr>
<tr>
<td>5</td>
<td>Oldooz</td>
<td>REST</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Guest Lecturer</td>
<td>Guest Lecture</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Oldooz</td>
<td>Service-oriented Architectures</td>
<td>Chapters 7, 8</td>
</tr>
<tr>
<td>8</td>
<td>Oldooz</td>
<td>Service Transactions</td>
<td>Chapters 9, 10</td>
</tr>
<tr>
<td>9</td>
<td>Oldooz</td>
<td>Security</td>
<td>Chapters 11, 12</td>
</tr>
<tr>
<td>10</td>
<td>Yan</td>
<td>Presentation</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Oldooz</td>
<td>Semantics</td>
<td>Chapter 13</td>
</tr>
<tr>
<td>12</td>
<td>Guest Lecturer</td>
<td>Guest Lecture</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Yan and Oldooz</td>
<td>revision</td>
<td></td>
</tr>
</tbody>
</table>

**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](https://policycentral.mq.edu.au/). Students
should be aware of the following policies in particular with regard to Learning and Teaching:


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/](https://students.mq.edu.au/support/student_conduct/)

**Results**

Results shown in iLearn, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit [ask.mq.edu.au](http://ask.mq.edu.au).

**Student Support**

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

**Learning Skills**

Learning Skills ([mq.edu.au/learningskills](http://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 Enquiry Service**

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

**Equity 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.
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 a web service.

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 and applications.
• Design and implement a web service.

**Assessment tasks**
- Biweekly 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 and applications.
- Design and implement a web service.

**Assessment tasks**
- Essay
- Final Examination

**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 and applications.
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.

Assessment tasks

- Biweekly Tasks
- Essay
- Practical Assignment
- Final Examination

Learning and teaching activities

- Lectures
- Mixed-class tutorials and practicals

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 and applications.
- Design and implement a web service.
**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.

<table>
<thead>
<tr>
<th>Grade</th>
<th>LO 1</th>
<th>LO 2</th>
<th>LO 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD</td>
<td>Discuss the key components of a web service with details, reasoning the necessity and importance of each component.</td>
<td>Provide a deep and insightful evaluation of a range of web services technologies.</td>
<td>Demonstrate proficiency in the design and implementation of all aspects of a web service.</td>
</tr>
<tr>
<td>D</td>
<td>Discuss the key components of a web service with details, reasoning importance of each component</td>
<td>Discuss and provide basic insights of a range of web services technologies.</td>
<td>Demonstrate proficiency in the design and implementation of most aspects of a web service.</td>
</tr>
<tr>
<td>Cr</td>
<td>Describe the key components of a web service with details, showing an understanding of the role of each component</td>
<td>Discuss and compare web service technologies.</td>
<td>Design and implement a web service capable of performing the usual range of functionality.</td>
</tr>
<tr>
<td>P</td>
<td>Provide short descriptions of the key components of a web service.</td>
<td>Describe a current key web service technology in detail.</td>
<td>Design and implement the basic functions of a web service.</td>
</tr>
</tbody>
</table>

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).