![Macquarie University Sydney Australia]

ITEC649

Web Technology

S1 Day 2017

Dept of Computing

Contents

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General Information

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Credit points
4

Prerequisites
Admission to MInfoTech or MEng or MSc

Corequisites

Co-badged status
COMP249

Unit description
This unit covers a range of techniques and concepts that are relevant to implementing systems on the world wide web. From web site development using HyperText Markup Language (HTML) and eXtensible Markup Language (XML), through to complete client–server applications, the unit explores the full spectrum of this technology, providing insight into the standards underlying the web and the programming techniques used to exploit these standards to build web applications.

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:

Explain what World Wide Web is and how it works.

Critique web design and apply good design principles.

Design and develop a database-backed web site using a modern scripting language.

Explain the legal and ethical issues relating to web applications.

Critically evaluate contemporary and emerging Web technologies.

Assessment Tasks

Name	Weighting	Hurdle	Due
Workshop exams	10%	No	Week 3, 6
Web Application Design	5%	No	Week 4
Mid-Term Exam	15%	No	Week 8
Web Application	30%	No	Weeks 7 and 10
Legal and Ethics Report	5%	No	Week 12
Security Report	5%	No	Week 12
Exam	30%	No	TBA

Workshop exams

Due: **Week 3, 6**
Weighting: **10%**

There will be two practical exams scheduled during the workshops of weeks 3 and 6 where you will be asked to write Python code. The exam questions will be of the same type as the exercises of the workshops of the preceding weeks.

The first exam will be before census date.

You will submit the answers during your scheduled workshop via iLearn.

On successful completion you will be able to:

• Design and develop a database-backed web site using a modern scripting language.

Web Application Design

Due: **Week 4**
Weighting: **5%**

This is a design task on HTML and CSS. You will be asked to write static HTML pages and add a CSS style.

This is a diagnostic task and submission will be before census date.

You will submit this task online via iLearn.

On successful completion you will be able to:
- Critique web design and apply good design principles.
- Design and develop a database-backed web site using a modern scripting language.

Mid-Term Exam

Due: **Week 8**
Weighting: **15%**

The Mid-Term exam will be held during the lecture hour in Week 8 and will cover the material in the first half of the unit.

On successful completion you will be able to:
- Explain what World Wide Web is and how it works.
- Critically evaluate contemporary and emerging Web technologies.

Web Application

Due: **Weeks 7 and 10**
Weighting: **30%**

This is the major programming task for this unit. You will develop a web application that makes use of a database and allows users to login, carry out some transactions, and logout. You will be provided with a set of unit tests that your code must pass as well as a set of functional requirements for the application.

You will submit this task online via iLearn in two stages.

On successful completion you will be able to:
- Critique web design and apply good design principles.
- Design and develop a database-backed web site using a modern scripting language.

Legal and Ethics Report

Due: **Week 12**
Weighting: **5%**

You will write a report on the legal and ethical aspect of web design and development. This will involve you researching the topic to find sources of information and using them to develop your report. You will be provided with pointers to resources but will be expected to find more based on your own research.

You will submit this report online via iLearn.

On successful completion you will be able to:

- Explain what World Wide Web is and how it works.
- Critique web design and apply good design principles.
- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Security Report

Due: **Week 12**
Weighting: **5%**

You will write a report on an aspect of web security. This will involve you researching the topic to find sources of information and using them to develop your report. You will be provided with pointers to resources but will be expected to find more based on your own research.

You will submit this report online via iLearn.

On successful completion you will be able to:

- Critique web design and apply good design principles.
- Critically evaluate contemporary and emerging Web technologies.

Exam

Due: **TBA**
Weighting: **30%**

The final exam will asses your ability to describe and explain the technologies we have covered in the unit. In particular we will ask about the topics covered towards the end of the unit on advanced and emerging web technology topics.

On successful completion you will be able to:

- Explain what World Wide Web is and how it works.
- Critique web design and apply good design principles.
- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Delivery and Resources

Classes

COMP249 is taught through a mixture of traditional lectures and online video presentations. Each week a number of video presentations will be made available on iLearn, you should watch these and follow up on the topics covered before the lecture on Wednesday. The lecture will recap some of the video content and provide a forum for discussion of the topics of the week. Some new material may be presented in the lecture if that format is more appropriate.

You will also have a two hour workshop each week in the computer laboratory. This will be used as a combined tutorial and practical class, with tasks each week to engage you in the topics we are discussing. It is important that you stay up to date on these tasks so that you will be better prepared for the workshop exams and for the major assessment in the unit. The workshops give you a chance to talk over any problems with your tutor.

Four of the workshop sessions will include an exam with questions related to the tasks that you carry out in the workshops.

Since your tutor will be keeping track of your marks, you should attend the workshop that you enroll in. If you do need to change, make sure your tutor and the tutor in the new class agree.

Required Texts

There is no required text for COMP249 this semester.

We have written a set of notes for the unit which will be added to through the semester. You can find them here:

- Python Web Programming

We will also provide notes, slides and links to other resources each week. It is important that you follow up links provided with the video presentations and in the notes on each topic.

Required Technology

You will be writing server side programs in Python 3.5 . We will use PyCharm as the recommended development environment although you are free to use your own favourite editor if you wish. You will be making use of a number of different web browsers (Firefox, Internet Explorer, Chrome, Safari, Opera...) to test web pages. All of this software will run on Windows, Mac or Linux.

Unit Schedule

The schedule below is the planned topic list for the unit but minor changes may be made in response to student feedback or other factors. See the iLearn unit page for the definitive and more detailed week by week breakdown.

1. Core Web Technology, Python
2. HTML, CSS, Bottle
3. Web Servers
4. Forms Processing, Databases
5. Cookies
6. HTML Validation, HTTP Response Codes
7. Javascript, Security on the Web
8. Usability and Accessibility

9. Data on the Web

10. Using Data from the Web

11. Advanced Application Architectures

12. Mobile Web Development

13. Review

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_2016.html

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

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration

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/

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.

Disruption to Studies

The University recognises that students may experience disruptions that adversely affect their academic performance in assessment activities. Support Services are provided by the University to assist students through their studies. Whilst advice and recommendations may be made to a student, it is ultimately the student's responsibility to access these services as appropriate. Please see the Disruption to Studies page for details of what is covered by this policy and how to make a submission.

If you apply for Disruption to Study for your final examination, you must make yourself available

for the week of July 24 – 28, 2017. If you are not available at that time, there is no guarantee an additional examination time will be offered. Specific examination dates and times will be determined at a later date.

Grade Appeal

In case of problems arising with your final grade, the first step is to organise a review. The Department recommends that you request an appointment with the convenor of the unit in order to review your grade. If the review does not solve the problem, a formal Grade Appeal can be lodged.

See the University Grade Appeal Policy.

Academic Honesty and Plagiarism

University Academic Honesty Policy

Plagiarism involves using the work of another person and presenting it as one's own. The Department, in line with University policy, treats all cases seriously.

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

The staff on the unit are here to help you succeed in your study. Please feel free to contact your tutor or your lecturer at any time if you are having trouble meeting any deadline or staying up to date with the work in the unit.

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.

Students with a disability are encouraged to contact the Disability Support Unit 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

The Science Centre, ground floor in building E7A, is the first point of call for most enquiries

relating to your program of study.

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

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

In the first instance, students should contact their tutor if there is a problem with hardware or software during a workshop session. If they can't resolve the issue, or if the problem occurs outside of a class time, then contact the ScienceIT support desk on level 3 of E6A.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcome

- Design and develop a database-backed web site using a modern scripting language.

Assessment tasks

- Workshop exams
- Web Application Design
- Web Application

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- Critique web design and apply good design principles.
- Critically evaluate contemporary and emerging Web technologies.

Assessment tasks

- Web Application Design

- Legal and Ethics Report
- Exam

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Assessment task

- Security Report

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Explain what World Wide Web is and how it works.
- Critique web design and apply good design principles.
- Design and develop a database-backed web site using a modern scripting language.
- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Assessment tasks

- Workshop exams
- Web Application Design
- Mid-Term Exam
- Web Application
- Legal and Ethics Report
- Security Report
- Exam

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Critique web design and apply good design principles.
- Critically evaluate contemporary and emerging Web technologies.

Assessment tasks

- Web Application Design
- Legal and Ethics Report
- Security Report
- Exam

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Design and develop a database-backed web site using a modern scripting language.
- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Assessment tasks

- Workshop exams
- Web Application Design
- Mid-Term Exam
- Web Application
- Legal and Ethics Report
- Security Report
- Exam

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- Explain what World Wide Web is and how it works.
- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Assessment tasks

- Mid-Term Exam
- Legal and Ethics Report
- Exam

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcomes

- Explain the legal and ethical issues relating to web applications.
- Critically evaluate contemporary and emerging Web technologies.

Assessment tasks

- Legal and Ethics Report
- Exam

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcome

- Explain the legal and ethical issues relating to web applications.

Assessment tasks

- Legal and Ethics Report
- Exam

Changes from Previous Offering

There have been some changes to assessment since the previous offering.

We have introduced a mid-term exam in week 8 and the final exam will be shorter.   The goal is to assess the core content about the web and HTTP earlier in the semester. The final exam will cover material mainly from the second half of the unit. We will provide sample exams for each of these.

We have reduced the number of practical exams to two (previously four). The goal of these exams is to assess your learning of Python and web programming in the first part of the unit. In the later part of the unit you will be writing more complex code as part of the Web Application assignment.

The weights on the individual assessment items have been adjusted so that they are relatively evenly split between written work (55%) and programming tasks (45%).

Grading Standards

Your final grade depends on your performance in each part of the assessment. For each task, you receive a mark that reflects your standard of performance regarding each learning outcome assessed by this task. Then the different component marks are added up to determine your total final mark out of 100. In order to pass this unit, you need to get a total score of 50%.

Pass: you demonstrate a basic understanding of the core technology of the web and are able to implement the main components of a web application.

Credit: all of the above plus shows a sound understanding of web technology, able to provide full solutions to all set assignment work and demonstrate an appreciation of how everything works together on the web.

Distinction: all of the above plus a demonstrated ability to apply the technologies covered to new problems or in new ways. Assignment solutions are excellent and well presented, implementing extended features or displaying high quality work.

High Distinction: very exceptional students who show a complete mastery of web technologies and are able to demonstrate their thorough understanding of the web at large and the issues involved in building modern web applications.

Criteria for passing the different assessment tasks will reflect the above standards and be made clear in the guidelines distributed with the task descriptions.

Late Submission

Unless you have made prior arrangements for late submission due to unforeseeable circumstances, you will be penalised one mark for every day that you submit late.

If you are unable to attend a workshop exam for any reason you must submit a Disruption to Studies notification immediately and attend a supplementary examination as arranged by the unit staff.