

SENG2050: Web Engineering

Callaghan

Semester 1 - 2019



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

OVERVIEW

Course Description

This course introduces students to the discipline of web Engineering including the methods and techniques used in web-based system development. In contrast to traditional software engineering, web engineering methods and techniques must incorporate unique aspects of the problem domain such as: document oriented delivery, fine-grained lifecycles, user-centric development, client-server legacy system integration and diverse end user skill levels. This course draws upon previous programming and computing experience to develop practical web development and maintenance skills. This course is intended for students with knowledge of both Internet communication concepts and an introductory programming knowledge (Java & Javascript).

Assumed Knowledge Contact Hours

SENG1110 and INFT1004 or equivalent, and SENG1050

Callaghan

Computer Lab

Face to Face On Campus

2 hour(s) per Week for Full Term

Lecture

Face to Face On Campus

2 hour(s) per Week for Full Term

Unit Weighting Workload

10

Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

COURSE OUTLINE

CONTACTS

Course Coordinator **Callaghan**
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(02) 4042 0488
Consultation: Wednesday: 12:00-14:00

Teaching Staff

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SYLLABUS

Course Content

1. Design methodologies to support web-based software systems
2. Development and maintenance models for web-based software systems
3. Server side programming and web application frameworks
4. System security for web-based software systems
5. Techniques to support mobile devices

Course Learning Outcomes

On successful completion of this course, students will be able to:

1. Develop a web application using server side programming languages and components.
2. Apply the web engineering methodologies for Web application development
3. Develop a component based web solution and use UML diagrams to describe such a solution.
4. Identify and discuss the security risk of a Web application.

Course Materials

Recommended Text:

- Marty Hall: "More Servlets and Java Server Pages" available from <http://pdf.moreservlets.com/>

COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:

Course Assessment Requirements:

- Assessment 4 - Formal Examination: Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course. Students whose overall mark in the course is 50% or more, but who score less than 40% in the compulsory item and thus fail to demonstrate the required proficiency, will be awarded a Criterion Fail grade, which will show as FF on their formal transcript. However, students in this position who have scored at least 25% in the compulsory item will be allowed to undertake a supplementary 'capped' assessment in which they can score at most 50% of the possible mark for that item.

ASSESSMENTS

This course has 4 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Programming Assignment 1	Week 5	Individual	12%	1
2	Programming Assignment 2	Week 8	Individual	13%	1
3	Group Project	Week 12	Group	30%	1, 2, 3, 4
4	Formal Examination*	Scheduled exam period	Individual	45%	1, 2, 3, 4

* This assessment has a compulsory requirement.

Late Submissions

The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Programming Assignment 1

Assessment Type

Written Assignment

Purpose

Programming assignments meet the course objectives of knowledge acquisition and design of solutions by requiring the development of web based programs. These assignments improve the design and programming skill of the students for the web based applications.

Description

Developing a Web Application using Servlet.

Weighting

12%

Due Date

Week 5

Submission Method

Online

Assessment Criteria

Return Method

Not Returned

Feedback Provided

Online - .

Assessment 2 - Programming Assignment 2

Assessment Type

Written Assignment

Purpose

Programming assignments meet the course objectives of knowledge acquisition and design of solutions by requiring the development of web based programs. These assignments

Description	improve the design and programming skill of the students for the web based applications.
Weighting	Developing a Web Application using JSPs
Due Date	13%
Submission Method	Week 8
Assessment Criteria	Online
Return Method	Not Returned
Feedback Provided	Online - .

Assessment 3 - Group Project

Assessment Type	Project
Purpose	The group project stimulates the real world application development and will give students some experiences of large web system development and also documentation standards. It will improve students' communication skills and ability to work in a team.
Description	
Weighting	30%
Due Date	Week 12
Submission Method	Online
Assessment Criteria	
Return Method	Not Returned
Feedback Provided	Online - .

Assessment 4 - Formal Examination

Assessment Type	Formal Examination
Purpose	The final formal examination is designed to test the individual student's knowledge of the course material and their ability to describe, analyse and hypothesis from this material.
Description	
Weighting	45%
Compulsory Requirements	Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course..
Due Date	Scheduled exam period
Submission Method	Formal Exam
Assessment Criteria	
Return Method	Not Returned
Feedback Provided	No Feedback - .
Opportunity to Reattempt	Students WILL be given the opportunity to reattempt this assessment. Refer to course outline for details.

Graduate Profile

This course builds students' capacity in the following University of Newcastle Bachelor of Engineering Graduate Profile Statements (based on 2011 Engineers Australia revised Stage 1 Competency Standards for Professional Engineers - Graduate Attributes):

	University of Newcastle Bachelor of Engineering Graduate Profile Statements	Taught	Practised	Assessed	Level of capability
	Knowledge Base				
1	1.1 A sound knowledge of engineering fundamentals and the sciences which underpin them				
2	1.2 An in-depth technical competence in at least one engineering specialisation	☑	☑	☑	2
3	1.3 The necessary skills to apply technologies and resources in engineering problem solving	☑	☑	☑	2
4	1.4 An appreciation of the broad range of issues which impact on the engineering domain as a component of our society				
	Engineering Ability				
5	2.1 An ability to undertake problem identification, formulation and solution	☑	☑	☑	2
6	2.2 An understanding of social, cultural, global and environmental responsibilities and the need to employ principles of sustainable development	☑	☑		2
7	2.3 An ability to utilise a systems approach to complex problems and to design and operation performance				
8	2.4 A proficiency in engineering design				
9	2.5 An ability to conduct an engineering project	☑	☑	☑	2
10	2.6 An understanding of the business environment and the ability to employ business principles within engineering projects				
	Professional Attributes				
11	3.1 An ability to communicate effectively with the engineering team and with the community at large	☑	☑	☑	2
12	3.2 An ability to manage information and documentation				
13	3.3 A capacity for creativity and innovation				
14	3.4 An understanding of professional and ethical responsibilities and a commitment to them				
15	3.5 An ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member	☑	☑	☑	2
16	3.6 A capacity for lifelong learning and professional development				
17	3.7 The ability to demonstrate the knowledge, skills and attitudes of a professional engineer				

	University of Newcastle Computer Science Graduate Profile Statements	Taught	Practised	Assessed	Level of Capability
1	Knowledge of basic science and computer science fundamentals.	☑	☑	☑	2
2	In depth technical competence in the discipline of computer science				
3	An ability to carry out problem analysis, requirements capture, problem formulation and integrated software development for the solution of a problem.	☑	☑	☑	2
4	Capacity to continue developing relevant knowledge, skills and expertise in computer science throughout their careers.	☑	☑	☑	2
5	An ability to communicate effectively with other Computer Scientists, Software Engineers, other professional disciplines, managers and the community generally.	☑	☑	☑	2
6	Ability to undertake and co-ordinate large computer science projects and to identify problems, their formulation and solution.	☑	☑	☑	2
7	Ability to function effectively as an individual, a team member in multidisciplinary and multicultural teams and as leader/manager with capacity to assist and encourage those under their direction.	☑	☑	☑	2
8	Understanding of social, cultural, global and business opportunities of the professional computer scientist; understanding the need for and principles of sustainability and adaptability	☑	☑		
9	Understanding of professional and ethical responsibilities and a commitment to them.				
10	Understanding of entrepreneurship; need of and process of innovation, as well as the need of and capacity for lifelong learning.				

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Communication Methods	Communication methods used in this course include: <ul style="list-style-type: none">- Blackboard Course Site: Students will receive communications via the posting of content or announcements on the Blackboard course site.- Email: Students will receive communications via their student email account.- Face to Face: Communication will be provided via face to face meetings or supervision.
Course Evaluation	Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.
Academic Misconduct	All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35 .
Adverse Circumstances	You are entitled to apply for special consideration because adverse circumstances have had an impact on your performance in an assessment item. This includes applying for an extension of time to complete an assessment item. Prior to applying you must refer to the Adverse Circumstances Affecting Assessment Items Procedure, available at https://policies.newcastle.edu.au/document/view-current.php?id=236 . All applications for Adverse Circumstances must be lodged via the online Adverse Circumstances system, along with supporting documentation.
Important Policy Information	The 'HELP for Students' tab in UoNline contains important information that all students should be familiar with, including various systems, policies and procedures.

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.

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