School of Information and Physical Sciences

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

COURSE OUTLINE

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).

Academic Progress Requirements
Nil

Assumed Knowledge
SENG1110 and INFT1004 or equivalent, and SENG1050

Contact Hours
Callaghan
Computer Lab
Face to Face On Campus
2 hour(s) per week(s) for 13 week(s) starting Week 1

Lecture
Face to Face On Campus
2 hour(s) per week(s) for 13 week(s) starting Week 1

Unit Weighting
10

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

CONTACTS

Course Coordinator   **Callaghan**
A/Pr Yuqing Lin
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(02) 4921 6076
Consultation: See Canvas for details

Teaching Staff   Other teaching staff will be advised on the course Canvas site.

School Office   **School of Information and Physical Sciences**
SR233, Social Sciences Building
Callaghan
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9am-5pm (Mon-Fri)

SYLLABUS

Course Content   1. Design methodologies to support web-based software systems2. Development and maintenance models for web-based software systems3. Server side programming and web application frameworks4. System security for web-based software systems5. 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 Readings:

- "Core Servlets and JavaServer Pages (JSP)" by Marty Hall, Publisher: Prentice Hall; ISBN-10: : 0130893404

- "More Servlets and JavaServer Pages" by Marty Hall, Publisher: Pearson Education; ISBN-10: 0130676144

- "Head First Servlets and JSP", 2nd Edition by Kathy Sierra, Bryan Basham, Bert Bates Publisher(s): O'Reilly Media, Inc. ISBN: 9780596516680

COMPULSORY REQUIREMENTS

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

Contact Hour Requirements:
   -
Course Assessment Requirements:
   - Assessment 4 - Formal Examination: Pass requirement 40% - Must obtain 40% in this assessment item to pass the course.
Compulsory Placement and WHS Requirements:
   -

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	26 Feb	Course Overview, JavaScript and Java Servlet		
2	4 Mar	Servlet and JSP	Computer Labs	
3	11 Mar	JSP and Java Beans	Computer Labs	
4	18 Mar	MVC and more JSP	Computer Labs	Assignment 1 11:59pm on Sunday
5	25 Mar	JDBC	Computer Labs	
6	1 Apr	Web Engineering	Computer Labs	
7	8 Apr	Requirements Engineering and UWE	Computer Labs	Assignment 2 11:59pm on Sunday
		Mid-Semester Recess		
		Mid-Semester Recess		
8	29 Apr	UWE and Web Engineering Process	Computer Labs	
9	6 May	Authentication, Authorisation and Security	Computer Labs	
10	13 May	MVC Framework	Computer Labs	
11	20 May	MVC Framework	Computer Labs	
12	27 May	Revision	Computer Labs	Group Project 11:59pm on Sunday
13	3 Jun			
		Examination Period		
		Examination Period		

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	Sunday Week 4	Individual	15%	1
2	Programming Assignment 2	Sunday Week 7	Individual	15%	1
3	Group Project	Sunday Week 12	Group	35%	1, 2, 3, 4
4	Formal Examination*	Scheduled exam period	Individual	35%	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 which meet the course objectives of Knowledge Acquisition and Design of Solutions by developing 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   15%
Due Date   11:59PM on Sunday Week 4
Submission Method   Online
Assessment Criteria To be announced on Canvas
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 developing 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 JSPs
Weighting   15%
Due Date   11:59PM on Sunday Week 7
Submission Method   Online
Assessment Criteria To be announced on Canvas
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   35%
Due Date   11:59PM on Sunday Week 12
Submission Method   Online
Assessment Criteria To be announced on Canvas
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   35%
Compulsory   Pass requirement 40% - Must obtain 40% in this assessment item to pass the course..
Requirements
Due Date   Scheduled exam period
Submission Method
Assessment Criteria
Return Method
Feedback Provided
Opportunity to   Students might be given the opportunity to reattempt this assessment.
Reattempt

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:

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.

Oral Interviews (Vivas)

As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the Oral Examination (viva) Procedure. In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the Student Conduct Rule.

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

The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:
1. the assessment item is a major assessment item; or
2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;
3. you are requesting a change of placement; or
4. the course has a compulsory attendance requirement.
Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at:

https://policies.newcastle.edu.au/document/view-current.php?id=236

| **Important Policy Information** | The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at https://www.newcastle.edu.au/current-students/respect-at-uni/policies-and-procedures that support a safe and respectful environment at the University. |

GRADUATE PROFILE STATEMENTS

The following table illustrates how this course contributes towards building the skills students will need to work in their profession.

Level of capability
- Level 1 indicates an introduction to a topic at a university level
- Levels 2 and 3 indicate progressive reinforcement of that topic
- Level 4 indicates skills commensurate with a graduate – entry to professional practice
- Level 5 indicates highly specialist or professional ability

Bachelor of Engineering

	University of Newcastle Bachelor of Engineering Graduate Profile Statements	Taught	Practised	Assessed	Level of capability
	Knowledge Base				
1	1.1. Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.				
2	1.2. Conceptual understanding of the, mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline.	X	X	X	2
3	1.3. In-depth understanding of specialist bodies of knowledge within the engineering discipline.	X	X	X	2
4	1.4. Discernment of knowledge development and research directions within the engineering discipline.				
5	1.5. Knowledge of contextual factors impacting the engineering discipline.	X	X	X	2
6	1.6. Understanding of the scope, principles, norms, accountabilities and bounds of contemporary engineering practice in the specific discipline.	X	X		2
	Engineering Ability				
7	2.1. Application of established engineering methods to complex engineering problem solving.				
8	2.2. Fluent application of engineering techniques, tools and resources.				
9	2.3. Application of systematic engineering synthesis and design processes.	X	X	X	2
10	2.4. Application of systematic approaches to the conduct and management of engineering projects.				
	Professional Attributes				
11	3.1. Ethical conduct and professional accountability	X	X	X	2
12	3.2. Effective oral and written communication in professional and lay domains.				
13	3.3. Creative, innovative and pro-active demeanour.				
14	3.4. Professional use and management of information.				
15	3.5. Orderly management of self, and professional conduct.	X	X	X	2
16	3.6. Effective team membership and team leadership.				

Bachelor of Computer Science

	University of Newcastle Bachelor of Computer Science Graduate Profile Statement	Taught	Practised	Assessed	Level of capability
1	Knowledge of basic science and computer science fundamentals	X	X	X	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	X	X	X	2
4	Capacity to continue developing relevant knowledge, skills and expertise in computer science throughout their careers	X	X	X	2
5	An ability to communicate effectively with other Computer Scientists, Software Engineers, other professional disciplines, managers and the community generally	X	X	X	2
6	Ability to undertake and co-ordinate large computer science projects and to identify problems, their formulation and solution	X	X	X	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	X	X	X	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	X	X		
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				