School of Information and Physical Sciences

SENG4211B: Software Engineering Final Year Project Part B

Callaghan
Semester 2 - 2023

COURSE OUTLINE

www.newcastle.edu.au
CRICOS Provider 00109J

OVERVIEW

Course Description

This course is Part B of a multi-term sequence. Part A must have also been completed in the same year to meet the requirements of the sequence.
Software Engineering Final Year Projects represent the culmination of study towards the Bachelor of Engineering degree. Projects offer the opportunity to apply and extend material learned throughout the remainder of the program. Assessment is by submission of software development documentation throughout the evolution of the project; submission of project final report and a formal presentation, demonstration of project outcomes and a research thesis.
In contrast to the majority of courses studied elsewhere in the program, projects are undertaken in groups. This necessarily introduces the dimension of workload management into the program to enable completion of a large, relatively unstructured "assignment" over the course of the year.
The projects undertaken span a diverse range of topics, including theoretical, simulation and software development, and vary from year to year. The emphasis is necessarily on facilitating student learning in technical, project management and presentation spheres.

Assumed Knowledge

SENG4211A

Contact Hours

Callaghan
Individual Supervision
Face to Face On Campus
1 hour(s) per Fortnight for 12 Weeks starting Week 1
Individual student supervision will take place in the supervisor's office
Seminar
Face to Face On Campus
2 hour(s) per Week for 12 Weeks starting Week 1

Workshop
Face to Face On Campus
3 hour(s) in Week 1 only
Individual student presentations in week 1 only

Unit Weighting Workload

20
Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

Multi-Term Sequence Advice

This course is part of a multi-term sequence. Both Part A and Part B must be completed to meet the requirements of the sequence. Part A and Part B must be completed in consecutive terms. Students must complete Part A before completing Part B. Students must complete the sequence within a twelve month period. If students complete Part A but are unable to complete Part B within the timeframe, they must re-enrol in Part A. Part A

cannot be completed as a standalone course, it will only count towards your program once you have successfully completed Part B.

CONTACTS

Course Coordinator

Callaghan
A/Pr Karen Blackmore
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Consultation: Please email to organise a time

Dr Kyle Harrison
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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
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+61 2 4921 5513
9am-5pm (Mon-Fri)

SYLLABUS

Course Content

This course will be conducted largely as a group project under the direct supervision of a member of academic staff. The specific project topic undertaken will reflect the common interests and expertise of the student(s) and supervisor. Students will be required to:
1. Perform a literature search to review current knowledge and developments in the chosen technical area
2. Undertake detailed technical work in the chosen area using one or more of:
   - theoretical studies
   - computer simulations
   - software development
3. Produce progress reports or maintain a professional journal to establish work completed, and to schedule additional work within the time frame specified for the project
4. Prepare a formal report describing the work undertaken and results obtained
5. Provide a formal presentation and demonstration of the project.

Course Learning Outcomes

On successful completion of this course, students will be able to:
1. Explain the complexity associated with organizing a large software development project as a team, including identifying risks associated with decisions and strategies for adapting the processes as the project evolves during the year

2. Obtain experience in the application of their previous knowledge in software requirements, design, test and validation in a concrete large project

3. Identify previous incorrect considerations in their time and management skills and gain working experience that would allow them to correct their views on the own capabilities leading to more realistic project plans

4. Use professional oral and written communication skills in the preparation of software prototypes, demos and documentation and so as to satisfy the standards of engineers and other software professionals

5. Demonstrate research skills in software engineering by locating, interpreting and applying technical information and standards

Course Materials

Recommended Reading:

- There are no textbook materials for the course, but suggested readings will be available through Canvas.

COMPULSORY REQUIREMENTS

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

Contact Hour Requirements:

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Course Assessment Requirements:

- Assessment 4 - Written Assignment: Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course. A student must achieve a score of at least 50% for their overall assessment in order to pass the Final Year Project.

- Assessment 5 - Written Assignment: Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course. A student must achieve a score of at least 40% for their Individual Final Report.

Pre-Placement Requirements:

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SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	17 Jul	Class workshop Meeting with supervisor and/or client		Individual Project Presentation
2	24 Jul	Meeting with supervisor and/or client		
3	31 Jul	Class workshop Meeting with supervisor and/or client		
4	7 Aug	Meeting with supervisor and/or client		
5	14 Aug	Class workshop Meeting with supervisor and/or client		
6	21 Aug	Meeting with supervisor and/or client		Progress Report 1
7	28 Aug	Class workshop Meeting with supervisor and/or client		
8	4 Sep	Meeting with supervisor and/or client		
9	11 Sep	Class workshop Meeting with supervisor and/or client		
10	18 Sep	Meeting with supervisor and/or client		System Demonstration
Mid Term Break				
Mid Term Break				
11	9 Oct	Class workshop Meeting with supervisor and/or client		
12	16 Oct	Meeting with supervisor and/or client		Group Final Report Progress Report 2
13	23 Oct			Individual Final Report Research Day Group Presentation
Examination Period				
Examination Period				

ASSESSMENTS

This course has 6 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Research Project Presentation	Week 1 – 11:59PM Friday 21 Jul 2023	Individual	10%	4, 5
2	Progress Reports	To be submitted in Weeks 6 (11:59PM 27 Aug 2023) and 12 (11:59PM 22 Oct 2023)	Group	10%	1, 2, 3, 4
3	System Demonstration	Week 10 – 11:59PM 24 Sep 2023	Group	10%	1, 2, 4, 5
4	Final Group Report*	Week 12 – 11:59PM 22 Oct 2023	Group	10%	1, 2, 3, 4, 5
5	Individual Project Report*	Week 13 – 11:59PM 29 Oct 2023	Individual	40%	4, 5
6	Research Day Presentation and Demonstration	Week 13 – Day/time to be confirmed	Group	20%	1, 2, 3, 4, 5

* 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 - Research Project Presentation

Assessment Type Presentation
Purpose Provide a formal presentation of the student's Individual Research Project.
Description Students will prepare and present a presentation on their individual research project and answer questions from the audience. Students will provide a brief overview of their topic, a summary of work they have already done during Semester 1 and their plan for Semester 2.
Weighting 10%
Due Date Week 1 – 11:59PM Friday 21 Jul 2023
Submission Method In Class
Assessment Criteria See Canvas for marking form
Return Method Not Returned
Feedback Provided Online - .

Assessment 2 - Progress Reports

Assessment Type Written Assignment
Purpose Progress Reports are used to improve team effectiveness.
Description The document should details the progress of the project, issues to be solved and contribution of each individual team member.
Weighting 10%
Due Date To be submitted in Weeks 6 (11:59PM 27 Aug 2023) and 12 (11:59PM 22 Oct 2023)
Submission Method Online
Assessment Criteria See Canvas for marking form
Return Method Not Returned
Feedback Provided In Class - .

Assessment 3 - System Demonstration

Assessment Type Presentation
Purpose Students should present, in an organised manner, an overview of the current status of the project, a clear explanation of what has been the significant progress areas since the last demonstration, limitations and problems with the current version, and a clear path on how they are going to complete the implementation work.

Description	The Final system demonstration would be a warm-up for the final presentation at the Research/Open day, so that feedback can be provided on the quality of the presentation, pitfalls of the description of functionalities, etc. Nevertheless, the system demonstration shall be presented to the project client and supervisor in a professional manner.
Weighting	10%
Due Date	Week 10 – 11:59PM 24 Sep 2023
Submission Method	In Class
Assessment Criteria	See Canvas for marking form
Return Method	Not Returned
Feedback Provided	Online - .

Assessment 4 - Final Group Report

Assessment Type	Written Assignment
Purpose	The report should be considered as the final document delivered to the client.
Description	The report should be an updated version of the requirements document/model, design documents, test plans and test evidence, user manual, deployment documentation and list of current issues and possible future extensions.
Weighting	10%
Compulsory Requirements	Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course..
Due Date	Week 12 - 11:59PM 22 Oct 2023
Submission Method	Online
Assessment Criteria	See Canvas for marking form
Return Method	Not Returned
Feedback Provided	Online - .
Opportunity to Reattempt	Students WILL be given the opportunity to reattempt this assessment. Student achieving >25% but less that 40% will be offered an alternate assessment if, and only if, all other assessment items have been submitted. Students obtaining <25% will not be offered an alternate assessment, and will fail the course, unless students have submitted Adverse Circumstances in accordance with the Adverse Circumstances Policy.

Assessment 5 - Individual Project Report

Assessment Type	Written Assignment
Purpose	Individual Project Final Report.
Description	The students should present individual reports that describe their individual research project. The report should concisely overview their work on their individual project and show how their individual research has also contributed to the group project. Assessment will be marked according to criteria that involve clarity, depth, and overall research coverage and outcomes of the individual contribution.
Weighting	40%
Compulsory Requirements	Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course..
Due Date	Week 13 – 11:59PM 29 Oct 2023
Submission Method	Online
Assessment Criteria	See Canvas for marking form
Return Method	Not Returned
Feedback Provided	Online - .
Opportunity to Reattempt	Students WILL be given the opportunity to reattempt this assessment. Student achieving >25% but less that 40% will be offered an alternate assessment if, and only if, all other assessment items have been submitted. Students obtaining <25% will not be offered an alternate assessment, and will fail the course, unless students have submitted Adverse Circumstances in accordance with the Adverse Circumstances Policy.

Assessment 6 - Research Day Presentation and Demonstration

Assessment Type	Presentation
Purpose	Provide a formal presentation of the student's Group Project.
Description	Students are requested to present to the public at large, in approximately 60 minutes, the whole project. Thereafter they will do a demonstration of the software they have developed

	and present use cases that correlate with the requirements elicited at the beginning of the project. The students' presentation must be articulate, showing that they understand all concepts and topics associated with the project, and they must be able to accept questions from the attending audience.
Weighting	20%
Due Date	Week 13 – Day/time to be confirmed
Submission Method	In Class
Assessment Criteria	See Canvas for marking form
Return Method	Not Returned
Feedback Provided	Online - .

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:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.
- Face to Face: Communication will be provided via face to face meetings or supervision.
- Email: Students will receive communications via their student email account.

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/no-room-for/policies-and-procedures that support a safe and respectful environment at the University.

Other Information

Detailed assessment criteria for each assessment task and any additional material will be available on the course Canvas site no less than two weeks prior to the due date of each assessment.

The final overall official mark will be the weighted average of the marks obtained during Part A and Part B (with weights of 1/3 and 2/3 respectively).

Students who did not complete Part A (SENG4211A) satisfactorily will have to withdraw from the course. Even though SENG4211A is not graded, it is expected that students enrolling in SENG4211B have completed the assessment items and achieved the equivalent of a "pass" or better.

Group Work: We recognize in group work that sometimes not everyone contributes equally to the group tasks. Thus, although groups receive a single mark for their submission, we reserve the right to vary individuals' marks based on peer feedback from other group members and feedback received from course staff. The best advice is to establish a dialogue between all team members and do not let a situation with great work unbalances to occur. More details will be provided online in Canvas.

	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.	X	X	X	4
2	1.2. Conceptual understanding of the, mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline.				
3	1.3. In-depth understanding of specialist bodies of knowledge within the engineering discipline.	X	X	X	4
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.				
6	1.6. Understanding of the scope, principles, norms, accountabilities and bounds of contemporary engineering practice in the specific discipline.				
	Engineering Ability				
7	2.1. Application of established engineering methods to complex engineering problem solving.	X	X	X	4
8	2.2. Fluent application of engineering techniques, tools and resources.	X	X	X	4
9	2.3. Application of systematic engineering synthesis and design processes.	X	X	X	4
10	2.4. Application of systematic approaches to the conduct and management of engineering projects.	X	X	X	4
	Professional Attributes				
11	3.1. Ethical conduct and professional accountability	X	X	X	4
12	3.2. Effective oral and written communication in professional and lay domains.	X	X	X	4
13	3.3. Creative, innovative and pro-active demeanour.	X	X	X	4
14	3.4. Professional use and management of information.	X	X	X	4
15	3.5. Orderly management of self, and professional conduct.	X	X	X	4
16	3.6. Effective team membership and team leadership.	X	X	X	4

	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	4
2	In depth technical competence in the discipline of computer science	X	X	X	4
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	4
4	Capacity to continue developing relevant knowledge, skills and expertise in computer science throughout their careers	X	X	X	4
5	An ability to communicate effectively with other Computer Scientists, Software Engineers, other professional disciplines, managers and the community generally	X	X	X	4
6	Ability to undertake and co-ordinate large computer science projects and to identify problems, their formulation and solution	X	X	X	4
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	4
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	X	X	X	4
10	Understanding of entrepreneurship; need of and process of innovation, as well as the need of and capacity for lifelong learning				

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.