

School of Information and Physical Sciences

SENG3160: Software Project 2: Software Implementation, Testing, and Maintenance

Callaghan
Semester 2 - 2023



OVERVIEW

Course Description

SENG3150 and SENG3160 form a 2 course sequence in which students apply their previously-developed knowledge and skills to a substantial practical team project. SENG3160 concentrates on the implementation, testing, and maintenance phases. A team project is undertaken which implements a provided design based on the SENG3150 project requirements. A second part of the course involves maintenance and extension of either the previously-implemented system, or legacy software for which documentation is provided.

Requisites

To enrol in this course you must have successfully completed SENG3150. This course replaces SENG3120. If you have successfully completed SENG3120 you cannot enrol in this course.

Assumed Knowledge Contact Hours

SENG3320 and SENG3150

Callaghan

Lecture

Face to Face On Campus

2 hour(s) per Week for 11 Weeks starting Week 1

Workshop

Face to Face On Campus

1 hour(s) per Week for 10 Weeks starting Week 2

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

www.newcastle.edu.au

CRICOS Provider 00109J

CONTACTS

Course Coordinator **Callaghan**
A/Pr Yuqing Lin
Yuqing.Lin@newcastle.edu.au
(02) 4921 6076
Consultation: see Canvas for details

Teaching Staff Dr. Hayden Cheers

School Office **School of Information and Physical Sciences**
SR233, Social Sciences Building
Callaghan
CESE-SIPS-Admin@newcastle.edu.au
+61 2 4921 5513
9am-5pm (Mon-Fri)

SYLLABUS

Course Content Topics for this course are:

- Software implementation
- Testing
- System integration
- Software system maintenance and configuration management
- Project management
- Software development tools and environments
- Software engineering standards for implementation, testing, and overall system quality

Course Learning Outcomes **On successful completion of this course, students will be able to:**

1. Develop and document a project plan, especially in implementation, testing, and maintenance in software development.
2. Design and execute a project management plan.
3. Recommend a high-quality software design.
4. Apply appropriate software testing strategies.
5. Demonstrate system integration skills and system maintenance skills.
6. Work and communicate effectively in a team.

Course Materials

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	17 Jul	Software Development Overview		
2	24 Jul	Software Quality and Software Maintenance	Mentor meeting	Project Progress Report
3	31 Jul		Mentor meeting	Project Progress Report
4	7 Aug		Mentor meeting	Project Progress Report
5	14 Aug	Software Testing, Tool Support (e.g. Junit) and Test Plan Development	Mentor meeting	Project Implementation Project Progress Report
6	21 Aug	Software Testing, Tool Support (e.g. Junit) and Test Plan Development	Mentor meeting	Project Progress Report System Demonstration
7	28 Aug	Software Security Issues	Mentor meeting	PBL Report Project Progress Report
8	4 Sep		Mentor meeting	Project Progress Report
9	11 Sep		Mentor meeting	Project Progress Report
10	18 Sep		Mentor meeting	Project Progress Report
Mid Term Break				
Mid Term Break				
11	9 Oct		Mentor meeting	Project Progress Report
12	16 Oct		Mentor meeting	Software Testing (Plan and Test Cases) Project Progress Report
13	23 Oct			
Examination Period				
Examination Period				

ASSESSMENTS

This course has 5 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Software Project Implementation	Sunday of Week 5.	Group	20%	1, 2, 3
2	Project Testing	Sunday of Week 12	Group	30%	1, 2, 4, 5
3	Problem Based Learning Report	Sunday of Week 7.	Individual	25%	3, 5
4	Project Management and Participation and Management	Weekly	Individual	15%	1, 2
5	System Demonstration	Week 6 and Week 7, details to be announced on Canvas.	Combination	10%	6

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 - Software Project Implementation

Assessment Type Description

Project

The teams will implement and improve the system to meet existing and new adaptive requirements. This may require revision of the current requirement and design documentation. Marks will be given on the quality of the developed system. It will test students' understanding of, and practical experience related to, the implementation and

	maintenance in software development. They will also further develop their skills in communication, team work and project management.
Weighting	20%
Due Date	11:59pm Sunday of Week 5.
Submission Method	Online
Assessment Criteria	Available on Canvas
Return Method	Not Returned
Feedback Provided	In Class - .

Assessment 2 - Project Testing

Assessment Type	Project
Description	The teams will develop the test plans and test cases for the software system. It will test students' understanding of, and practical experience related to, the software testing in software development. They will also further develop their skills in communication, team work and project management.
Weighting	30%
Due Date	11:59pm Sunday of Week 12
Submission Method	Online
Assessment Criteria	Available on Canvas
Return Method	Not Returned
Feedback Provided	In Class - .

Assessment 3 - Problem Based Learning Report

Assessment Type	Report
Description	Students will be given a topic for self-learning. The learned concepts and how they apply the concept to solve project problems will be presented into a PBL report. This assessment will test the individual student's knowledge on the given topic and their ability to present and apply of the knowledge.
Weighting	25%
Due Date	11:59pm Sunday of Week 7.
Submission Method	Online
Assessment Criteria	Available on Canvas
Return Method	Not Returned
Feedback Provided	In Class - .

Assessment 4 - Project Management and Participation

Assessment Type	Report
Description	In a project, it is everyone's responsibility to develop a work plan and to maintain project progress chart using a project management tool. These activities will enable peer-to-peer learning; developing project management and oral communication skills. Progress reports 10% and project participation 5%.
Weighting	15%
Due Date	Weekly
Submission Method	Online
Assessment Criteria	
Return Method	Not Returned
Feedback Provided	In Class - .

Assessment 5 - System Demonstration

Assessment Type	Presentation
Description	Each team will demonstrate their final implementation. This will benchmark progress on the implementation. This activity will improve students' oral communication and presentation skills.
Weighting	10%
Due Date	Week 6 and Week 7, details to be announced on Canvas.
Submission Method	In Class
Assessment Criteria	Available on Canvas
Return Method	Not Returned
Feedback Provided	In Class - .

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:

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.

	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				
2	In depth technical competence in the discipline of computer science	X	X	X	3
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	3
4	Capacity to continue developing relevant knowledge, skills and expertise in computer science throughout their careers	X	X	X	3
5	An ability to communicate effectively with other Computer Scientists, Software Engineers, other professional disciplines, managers and the community generally	X	X	X	3
6	Ability to undertake and co-ordinate large computer science projects and to identify problems, their formulation and solution	X	X	X	3
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	3
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	X	3
9	Understanding of professional and ethical responsibilities and a commitment to them	X	X	X	3
10	Understanding of entrepreneurship; need of and process of innovation, as well as the need of and capacity for lifelong learning	X	X	X	3

	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	3
3	1.3. In-depth understanding of specialist bodies of knowledge within the engineering discipline.	X	X	X	3
4	1.4. Discernment of knowledge development and research directions within the engineering discipline.	X	X	X	3
5	1.5. Knowledge of contextual factors impacting the engineering discipline.	X	X	X	3
6	1.6. Understanding of the scope, principles, norms, accountabilities and bounds of contemporary engineering practice in the specific discipline.	X	X	X	3
	Engineering Ability				
7	2.1. Application of established engineering methods to complex engineering problem solving.	X	X	X	3
8	2.2. Fluent application of engineering techniques, tools and resources.	X	X	X	3
9	2.3. Application of systematic engineering synthesis and design processes.	X	X	X	3
10	2.4. Application of systematic approaches to the conduct and management of engineering projects.	X	X	X	3
	Professional Attributes				
11	3.1. Ethical conduct and professional accountability	X	X	X	3
12	3.2. Effective oral and written communication in professional and lay domains.	X	X	X	3
13	3.3. Creative, innovative and pro-active demeanour.	X	X	X	3
14	3.4. Professional use and management of information.	X	X	X	3
15	3.5. Orderly management of self, and professional conduct.	X	X	X	3
16	3.6. Effective team membership and team leadership.	X	X	X	3

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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