

SENG2130: Systems Analysis and Design

Singapore PSB

Trimester 3 - 2023 (Singapore)



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

OVERVIEW

Course Description	This course examines the development of information systems and their software components. It focuses on the need for development methodologies that support the emerging need for flexible, interactive and evolutionary construction.
Requisites	This course has similarities to INFT2009. If you have successfully completed INFT2009 you cannot enrol in this course.
Assumed Knowledge	SENG1110 Object Oriented Programming OR INFT1004 Introduction to Programming
Contact Hours	Computer Lab Face to Face On Campus 2 hour(s) per week(s) for Full Term starting Week 2 Lecture Face to Face On Campus 2 hour(s) per week(s) for Full Term 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.

COURSE OUTLINE

www.newcastle.edu.au

CRICOS Provider 00109J

CONTACTS

Course Coordinator	Singapore PSB Associate Professor Raymond Chiong Raymond.Chiong@newcastle.edu.au +61 2 4921 7367 Consultation: By email only
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 CESE-SIPS-Admin@newcastle.edu.au +61 2 4921 5513

SYLLABUS

Course Content	<ol style="list-style-type: none">1. Overview of Software Development Life-Cycle models.2. Modelling approaches and modelling languages such as UML in software development.3. Requirement elicitation and system design.4. Implementation strategies.5. Introduction to the later phases of software development.6. Personal, professional and social responsibilities in ICT and how they need to be considered in all phases of software development.
Course Learning Outcomes	<p>On successful completion of this course, students will be able to:</p> <ol style="list-style-type: none">1. Produce design documents that demonstrate their understanding of the role of each major software development phase.2. Produce and evaluate a software design.3. Describe a software design using UML diagrams.4. Produce a strategy plan for system deployment and ongoing maintenance.5. Discuss the professional and social responsibilities of software engineers.
Course Materials	<p>Other Resources:</p> <ul style="list-style-type: none">- SEBoK: Guide to the Systems Engineering Body of Knowledge (SEBoK) https://www.sebokwiki.org/wiki/Guide_to_the_Systems_Engineering_Body_of_Knowledge_(SEBoK) <p>Recommended Reading:</p> <ul style="list-style-type: none">- Satzinger, Jackson and Burd. (2016) Systems Analysis and Design in a Changing World, Cengage Learning. Can be accessed via UoN library (E-Book)- Bruegge, Dutoit. (2010) Object-Oriented Software Engineering using UML, Patterns, and Java, Prentice Hall

COMPULSORY REQUIREMENTS

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

Course Assessment Requirements:

- Assessment 2 - 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	Group Project 1	Friday of Week 6 (Oct 13) by 5pm	Group	20%	1, 2, 3, 5
2	Formal Exam*	Formal Exam Period	Individual	40%	2, 3, 4, 5
3	Online Quiz	Weeks: 3,5,8,10,12 Open on the Monday at 9am and close Sunday at 11:59pm	Individual	10%	3, 4, 5
4	Group Project 2	Friday of Week 13 (Dec 1) by 5pm	Group	30%	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 - Group Project 1

Assessment Type	Written Assignment
Purpose	The group project simulates real world application development and will give students some experiences of large system development. The project will also enhance students' communication skills and ability to work in a team. Team management processes will be assisted by using templates provided.
Description	The project has two milestones. The first milestone of the project focuses on the requirement modelling of a software system along with some system analysis and rudimentary design. Findings will be presented using appropriate UML diagrams in a report format and include items such as team meeting and management documentation.
Weighting	20%
Due Date	Friday of Week 6 (Oct 13) by 5pm
Submission Method	Online Via Assessment upload link
Assessment Criteria	Refer to assessment specifications on Canvas
Return Method	Not Returned
Feedback Provided	Online - Once all assessments are submitted and graded.

Assessment 2 - Formal Exam

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 problems given in the formal exam.
Description	2-hour formal exam
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	Formal Exam Period
Submission Method	Formal Exam
Assessment Criteria	Refer to Canvas for further information.
Return Method	Not Returned
Feedback Provided	No Feedback
Opportunity to Reattempt	Students WILL be given the opportunity to reattempt this assessment.

Assessment 3 - Online Quiz

Assessment Type	Quiz
Description	Online quizzes
Weighting	10%
Length	10 questions in 30 minutes
Due Date	Weeks: 3,5,8,10,12 Open on the Monday at 9am and close Sunday at 11:59pm
Submission Method	Online
Assessment Criteria	A student's overall mark for the quizzes will be based on the student's best 4 of the 5 quizzes. For this reason, we will not accept adverse circumstances request for individual quizzes.
Return Method	Not Returned
Feedback Provided	Online - Marks will be available shortly after each quiz.

Assessment 4 - Group Project 2

Assessment Type	Written Assignment
Purpose	The group project simulates real world application development and will give students some experiences of large system development. The project will also improve students' communication skills and ability to work in a team. Team management processes will be assisted by using templates provided.
Description	In the second milestone, students will finalise the design of the software system and findings will be presented using appropriate UML diagrams in a report format. This milestone will include items such as interface prototypes, testing protocols, deployment plan, team meetings and management documentation.
Weighting	30%
Due Date	Friday of Week 13 (Dec 1) by 5pm
Submission Method	Online Via Assessment upload link
Assessment Criteria	Refer to assessment specifications on Canvas
Return Method	Not Returned
Feedback Provided	Online - Once all assessments are submitted and graded.

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).

Attendance

Attendance/participation will be recorded in the following components:

- Computer Lab (Method of recording: Class roll)

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.
- 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.

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.

GRADUATE PROFILE STATEMENTS

	University of Newcastle Bachelor of Information Technology Graduate Profile Statements	Taught	Practised	Assessed	Level of Capability
1	Demonstrate a comprehensive understanding of the discipline of information technologies with an emphasis on net-centric applications, information management, and user requirements for ethical professional practice.	X	X		1
2	Apply critical reasoning and systems thinking to understand and support the operation and constraints of contemporary enterprises and their dynamic environment.	X	X		2
3	Work independently and collaboratively to locate, manage and organise information and resources and apply evidence-based methodologies to create, modify and maintain designs and design solutions.	X	X	X	2
4	Use creativity, problem solving skills, project management skills and technical expertise to analyse, interpret, evaluate and generate solutions to complex technical and organisational problems.	X	X	X	2
5	Demonstrate professional judgement and responsibility by communicating information technology principles, practices, standards to specialist and non-specialist audience clearly and persuasively.	X	X	X	2

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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