School of Information and Physical Sciences

COMP1010: Computing Fundamentals

Callaghan
Semester 1 - 2024

COURSE OUTLINE

OVERVIEW

Course Description

This course introduces students to the principles and techniques behind hardware and software systems. This includes the technical skills required to model and develop working software solutions and identify related ethical issues. This course also develops the career-long skills required to work and manage tasks in a team environment.

Academic Progress Requirements

Nil

Requisites

This course has similarities to INFT1001 and INFT1150. If you have successfully completed either you cannot enrol in COMP1010.

Contact Hours

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

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

* This contact type has a compulsory requirement.

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.

CONTACTS

Course Coordinator

Callaghan
Prof Pablo Moscato
Pablo.Moscato@newcastle.edu.au
(02) 492 16056
Consultation: To be announced in Canvas. Request F2F consultation via email first.

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
9am-5pm (Mon-Fri)

SYLLABUS

Course Content

1) Fundamentals of hardware and software systems;2) Introduction to software development;3) Ethical issues in computing;4) Introduction to requirement engineering;5) History, role, and societal impact of computing;6) Team work, responsibility and communications.

Course Learning Outcomes

On successful completion of this course, students will be able to:
1. Describe the concepts and interdependencies of hardware and software systems;

2. Apply different software development models;

3. Explain ethical issues associated with the use of IT in business;

4. Model and analyse the ways that organisations or other systems work;

5. Describe the history of computing, its role in the ICT industry, and societal impact;

6. Work and communicate as an effective member of a well-managed team utilising appropriate project management techniques and tools.

Course Materials

COMPULSORY REQUIREMENTS

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

Contact Hour Requirements:

- Workshop Attend 80% of sessions

Course Assessment Requirements:

- Assessment 3 - Formal Examination: Pass requirement 40% - Must obtain 40% in this assessment item to pass the course.

Compulsory Placement and WHS Requirements:

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SCHEDULE

ASSESSMENTS

This course has 3 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Group Report	June the 2nd, 2024	Group	25%	1, 2, 3, 4, 5, 6
2	Group Work	April 14th, 2024.	Group	25%	1, 2, 3, 4, 5, 6
3	Formal Examination*	During formal examination time (June 10th - June 22nd).	Individual	50%	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 - Group Report

Assessment Type Report
Purpose A report based on some of the topics presented and that requires them to research more some topics. They assessment introduced them to Overleaf and LaTeX for producing quality documents and to work in a team environment.
Description Students will form groups of 3 to 5 to work on a selected case study. The students should work on this report starting early in the semester. A production a poster based on the chosen topic will be presented as part of the Group Work assessment. The report will continue on this same topic, so the production of the poster can be considered as a milestone in the production of a more comprehensive report towards the end of the semester.
Weighting 25%
Length 10 pages, details will be given in Canvas.
Due Date June the 2nd, 2024
Submission Method Online
Assessment Criteria See Canvas site for information
Return Method Online
Feedback Provided
Opportunity to Reattempt Students WILL NOT be given the opportunity to reattempt this assessment.

Assessment 2 - Group Work

Assessment Type Written Assignment
Purpose They assessment introduced them to Overleaf and LaTeX for producing posters and to work in a team environment. It allows the students to explore a topic of their interest in computing and how it relates to curricula/education in this area.
Description Students will form groups of 3 to 5 to work on a Written Assessment covering nearly the first half of the topics of the course. A quiz will be part of the work that the students should do.
Weighting 25%
Due Date April 14th, 2024.
Submission Method Online
Assessment Criteria See Canvas site for information.
Return Method Online
Feedback Provided Online - April the 30th, 2024..
Opportunity to Reattempt Students WILL NOT be given the opportunity to reattempt this assessment.

Assessment 3 - Formal Examination

Assessment Type Formal Examination

Purpose	The final examination concentrates on the concepts given in lectures and workshops and questions can potentially cover all type of material presented. The exam is Face-to-Face and based on multiple choice of 100 questions.
Description	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.
Weighting	50%
Compulsory Requirements	Pass requirement 40% - Must obtain 40% in this assessment item to pass the course..
Length	100 questions - approximately 2 hours duration.
Due Date	During formal examination time (June 10th - June 22nd).
Submission Method	Formal Exam
Assessment Criteria	See Canvas site for information.
Return Method	Not Returned
Feedback Provided	No Feedback - .
Opportunity to Reattempt	Students WILL be given the opportunity to reattempt this assessment.

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:

- Workshop (Method of recording: All students' attendance will be recorded using the myUni app.)

Attendance at 80% of workshops is compulsory for commencing students. You can check in using the app or advise the academic staff member in charge of the workshop at the commencement of the session if you need them to check in on your behalf. All students' attendance will be recorded using the myUni app. The 80% attendance requirement does also apply to continuing students.

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.

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.
As a result of student feedback, the following changes have been made to this offering of the course:

- Introduction of a number of quizzes.
- Incorporation of Overleaf/LaTeX for high quality presentations and production of manuscripts/reports.
- Inclusion of lectures by members of Industry.
- Rescheduling of the material so that it maintains the flow of some textbooks while it does not "saturate" on a specific topic for several weeks.
- Rearrangement of the first two assignments to provide students the opportunity to work together as a team in the production of a poster (and receive feedback), as a previous milestone leading to the production of a deeper study in the form of a report.

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

6	Ability to undertake and co-ordinate large computer science projects and to identify problems, their formulation and solution				
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	1
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	1
9	Understanding of professional and ethical responsibilities and a commitment to them	X	X	X	1
10	Understanding of entrepreneurship; need of and process of innovation, as well as the need of and capacity for lifelong learning				

8	2.2. Fluent application of engineering techniques, tools and resources.				
9	2.3. Application of systematic engineering synthesis and design processes.				
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	1
12	3.2. Effective oral and written communication in professional and lay domains.	X	X	X	1
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.				
16	3.6. Effective team membership and team leadership.	X	X	X	1

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	1
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				
4	Capacity to continue developing relevant knowledge, skills and expertise in computer science throughout their careers				
5	An ability to communicate effectively with other Computer Scientists, Software Engineers, other professional disciplines, managers and the community generally	X	X	X	1

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.	X	X	X	1
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.				
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.	X	X	X	1
	Engineering Ability				
7	2.1. Application of established engineering methods to complex engineering problem solving.				

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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.