Faculty of Engineering & Built Environment

School of Electrical Engineering and Computing

COMP1010: Computing Fundamentals

Callaghan

Semester 1 - 2017

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. Discrete mathematics is an important part of the basic knowledge of any professional in the ICT sector and this course will introduce the student to some of its key concepts.

Requisites

This course has similarities to INFT1001. If you have completed INFT1001 you cannot enrol in this course.

Contact Hours

Lecture
Face to Face On Campus
2 hour(s) per Week for Full Term

Workshop
Face to Face On Campus
2 hour(s) per Week for Full Term

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
Dr Raymond Chiong
Raymond.Chiong@newcastle.edu.au
(02) 4921 7367
Consultation: By appointment only.

Teaching Staff

Other teaching staff will be advised on the course Blackboard site.

School Office

School of Electrical Engineering and Computing
EAG08
EA Building
Callaghan
+61 2 4921 6026
8.30am- 12.30pm and 1.30pm-4.30pm (Mon-Fri)

SYLLABUS

Course Content

1) Group communication skills;
2) Concepts of hardware and software systems;
3) Project management;
4) Software development;
5) Modelling hardware and software systems;
6) Ethical issues;
7) Fundamentals of discrete mathematics;
8) Computing in the ICT industry.

Course Learning Outcomes

On successful completion of this course, students will be able to:
1. Comprehend the concepts of hardware and software systems;
2. Comprehend the different software development models;
3. Recognise ethical issues related to hardware and software systems;
4. Model how hardware and software systems work;
5. Work and communicate as an effective member of a well-managed team;
6. Comprehend and use appropriate project management techniques and tools;
7. Recognise and/or construct examples of mathematical objects, such as sets and functions;
8. Comprehend the concepts of mathematical models, (e.g. propositional logic, trees);
9. Understand how computing is part of the ICT industry

Course Materials

UoNline (Blackboard) Site

Students enrolled in the course can login http://uonline.newcastle.edu.au/ to access the UoNline site used to support this course. You need to visit the UoNline site on a regular basis. However, additional material will be delivered in lectures to that posted on UoNline. Students are strongly advised to attend lectures and workshops in order to gain a full understanding of the theoretical and practical skills required in this discipline.

Recommended Text

COMP1010 *Computing Fundamentals* compiled by Raymond Chiong, Mira Park and Mark Wallis, 1st Edition, Cengage Learning, 2017

COMPULSORY REQUIREMENTS

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

Course Assessment Requirements:

- Assessment 3 - Formal Examination: Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course. Students must obtain >=40% in the final exam to pass the course.

SCHEDULE

Week	Week Begins	Lecture Topics	Workshops	Assessment Due
1	27 Feb	Introduction + Group Communication Skills	No workshop	
2	6 Mar	Concepts of Hardware and Software		
3	13 Mar	Concepts of Hardware and Software		
4	20 Mar	Project Management		
5	27 Mar	Software Development		
6	3 Apr	Software Development		
7	10 Apr	Modelling of hardware and software systems		
Mid Semester Break				
8	24 Apr	Modelling of hardware and software systems		
9	1 May	Ethical issues		Group Report Due
10	8 May	Fundamentals of Discrete Mathematics	Group Presentation	
11	15 May	Fundamentals of Discrete Mathematics	Group Presentation	
12	22 May	Computing in the ICT industry	Group Presentation	
13	29 May	No lecture	No workshop	
Semester 1 Examinations Week 1				
Semester 1 Examinations Week 2				
Semester 1 Examinations Week 3				

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	End of Week 9	Group	35%	1, 2, 4, 5, 6
2	Group Presentation	Weeks 10-12	Group	15%	1, 2, 4, 5, 6
3	Formal Examination*	Exam Period	Individual	50%	1, 2, 3, 4, 6, 7, 8, 9

* 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.

Retention of Assignment Scripts	In 2018, the University of Newcastle will undergo its 5 yearly accreditation cycle with Engineers Australia. Part of this routine process is the collection of a sample of student assignments over a 1+ year period. The objective is to provide the accrediting panel an indication of educational rigour across all courses. In 2017, we will commence collecting sample assignments from each and every assessment task, across the full spectrum of marks. They will be provided to the panel but not de-identified. If you object to your assignment being retained with your name associated, please indicate this on the submission, and if retained, we will de-identify your paper. All papers will be destroyed at the completion of the accreditation process.

Assessment 1 - Group Report

Assessment Type	Report
Description	Students will form groups of 3 to 4 to work on a selected case study.
Weighting	35%
Due Date	End of Week 9 (5 May, 2017)
Submission Method	Online via Blackboard
Assessment Criteria	See Blackboard
Return Method	Returnable
Feedback Provided	In Class

Assessment 2 - Group Presentation

Assessment Type	Presentation
Description	Students will be given 12 minutes to present their group report (see above) plus 3 minutes for questions and answers.
Weighting	15%
Due Date	Weeks 10-12 (in workshops)
Submission Method	In Class
Assessment Criteria	See Blackboard
Return Method	Returnable
Feedback Provided	In Class

Assessment 3 - Formal Examination

Assessment Type	Formal Examination
Description	The final examination concentrates on the concepts covered in lectures.
Weighting	50%
Compulsory Requirements	Minimum Grade / Mark Requirement - Students must obtain a specified minimum grade / mark in this assessment item to pass the course. See above.
Due Date	Exam Weeks
Submission Method	Formal Examination Process
Assessment Criteria	See Blackboard
Return Method	Not Returned
Feedback Provided	N/A
Opportunity to Reattempt	Students WILL NOT 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).

Communication Methods

Communication methods used in this course include:

- Blackboard Course Site: Students will receive communications via the posting of content or announcements on the Blackboard 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.

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 http://www.newcastle.edu.au/policy/000608.html.

Adverse Circumstances

You are entitled to apply for special consideration because adverse circumstances have had an impact on your performance in an assessment item. This includes applying for an extension of time to complete an assessment item. Prior to applying you must refer to the Adverse Circumstances Affecting Assessment Items Procedure, available at http://www.newcastle.edu.au/policy/000940.html. All applications for Adverse Circumstances must be lodged via the online Adverse Circumstances system, along with supporting documentation.

Important Policy Information

The 'HELP for Students' tab in UoNline contains important information that all students should be familiar with, including various systems, policies and procedures.

GRADUATE PROFILE STATEMENTS

	Engineers Australia Stage 1 Graduate Competencies	Taught	Practised	Assessed	Level of capability
1	Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.				
2	Conceptual understanding of the, mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline.	☑	☑	☑	1
3	In-depth understanding of specialist bodies of knowledge within the engineering discipline.				
4	Discernment of knowledge development and research directions within the engineering discipline.				
5	Knowledge of contextual factors impacting the engineering discipline.				
6	Understanding of the scope, principles, norms, accountabilities and bounds of contemporary engineering practice in the specific discipline.	☑	☑	☑	1
7	Application of established engineering methods to complex engineering problem solving.				
8	Fluent application of engineering techniques, tools and resources.				
9	Application of systematic engineering synthesis and design processes.				
10	Application of systematic approaches to the conduct and management of engineering projects.				
11	Ethical conduct and professional accountability	☑	☑	☑	1
12	Effective oral and written communication in professional and lay domains.	☑	☑	☑	1
13	Creative, innovative and pro-active demeanour.				
14	Professional use and management of information.				
15	Orderly management of self, and professional conduct.				
16	Effective team membership and team leadership.	☑	☑	☑	1

	University of Newcastle Computer Science Graduate Profile Statements	Taught	Practised	Assessed	Level of capability
1	Knowledge of basic science and computer science fundamentals	☑	☑	☑	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	☑	☑	☑	1
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	☑	☑	☑	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	☑	☑	☑	1
9	Understanding of professional and ethical responsibilities and a commitment to them	☑	☑	☑	1
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.