Faculty of Engineering & Built Environment

School of Electrical Engineering and Computing

SENG1110: Object Oriented Programming

Callaghan

Semester 1 - 2017

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

COURSE OUTLINE

OVERVIEW

Course Description

This course is an introduction to object-oriented programming language. The course introduces the fundamentals of analysing a problem and then implementing a solution as a computer software system using an object oriented language. Students learn about problem solving strategies, top-down program development and programming style. The course provides a basic introduction to data abstraction and object-oriented analysis and design. Emphasis is placed on programming and testing.

Contact Hours

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

Lecture
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
Prof Regina Berretta
Regina.Berretta@newcastle.edu.au
(02) 4921 8975
Consultation:

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. Programming language syntax
2. Elementary programming concepts
3. Control structures
4. Object oriented programming basics
5. Methods and classes
6. Documentation techniques
7. Testing and debugging techniques
8. Arrays

Course Learning Outcomes

On successful completion of this course, students will be able to:

1. Comprehend the concepts of object-orientated programming

2. Comprehend a programming problem and design a solution

3. Code a solution to a problem

4. Comprehend and implement selection and loop structures

5. Comprehend and implement classes and methods

6. Comprehend and implement different input/output solutions

7. Comprehend and implement arrays

8. Test and document program solutions

Course Materials

Recommended Reading:

- Any book concentrated in Java can be useful. Please, consult the course coordinator

Required Text:
Java: An Introduction to Problem Solving and Programming, 7/E, Walter Savitch, Pearson

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 5 - 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.

Pre-Placement Requirements:

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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	Laboratory Exercises	Every week in your computer lab	Individual	5%	1, 2, 3, 4, 5, 6, 7, 8
2	Programming Assignment 1	13/04, 11:59pm	Individual	15%	1, 2, 3, 4, 5, 6
3	Programming Assignment 2	26/05, 11:59pm	Individual	15%	1, 2, 3, 4, 5, 6, 7, 8
4	Midterm exam	12/04, 9:00am (in the lecture room)	Individual	15%	1, 2, 3, 4, 5, 6
5	Final Exam*	As per university timetable	Individual	50%	1, 2, 3, 4, 5, 6, 7, 8

* 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.

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 - Laboratory Exercises

Assessment Type Computer Laboratory Exercises
Description Individual small programming tasks that need to be completed in the computer labs (1 per week). It will give information back to students about their learning progress
Weighting 5%
Submission Method In Class
The work must be shown to your demonstrator in your computer lab.
Assessment Criteria The demonstrator will check the programming code and ask questions.
Return Method Not Returned
Feedback Provided In Class - . The demonstrator will provide feedback during the computer lab.

Assessment 2 - Programming Assignment 1

Assessment Type	Programming Assignment
Description	Individual programming task (more details will be available in Blackboard). Students will have around 3 weeks to complete each assignment.
Weighting	15%
Submission Method	Online
Assessment Criteria	Assessment criteria will be available on the course Blackboard
Return Method	Not Returned
Feedback Provided	In Class - . The demonstrator will provide feedback during the computer lab.

Assessment 3 - Programming Assignment 2

Assessment Type	Programming Assignment
Description	Individual programming task (more details will be available in Blackboard). Students will have around 3 weeks to complete each assignment.
Weighting	15%
Submission Method	Online
Assessment Criteria	Assessment criteria will be available on the course Blackboard
Return Method	Not Returned
Feedback Provided	In Class - . The demonstrator will provide feedback during the computer lab.

Assessment 4 - Midterm exam

Assessment Type	In Term Test
Description	Written exams, which are designed to test students¿ knowledge and understanding of the course material and their ability to apply it. The examinations will be conducted in classrooms (more details will be available in Blackboard)
Weighting	15%
Submission Method	In Class Written exam completed in class
Assessment Criteria	Assessment criteria will be available on the course Blackboard
Return Method	Not Returned
Feedback Provided	In Class - . Feedback will be provided in computer labs by your demonstrator and by the course coordinator in the consultation times.

Assessment 5 - Final Exam

Assessment Type	Formal Examination
Description	written exams, which are designed to test students¿ knowledge and understanding of the course material and their ability to apply it. The examinations will be conducted in classrooms (more details will be available in Blackboard)
Weighting	50%
Compulsory Requirements	Students must obtain 40% in the final exam to pass the course.
Due Date	As per university timetable
Submission Method	In Class Formal exam - written exam completed in class
Assessment Criteria	Details about the structure of the exam will be provided on Blackboard prior to exam
Return Method	Not Returned
Feedback Provided	In Person - . By course coordinator in the consultation times .
Opportunity to Reattempt	Students WILL be given the opportunity to reattempt this assessment. Student achieving >25% but less than 40% will be offered an alternate assessment if, and only if, all other assessment items have been submitted, and the overall mark is >= 50%. 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.

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.
- Email: Students will receive communications via their student email account (Students are advised to regularly login to Blackboard and check their NUmail student email account)
- Discussion Boards

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

This course builds students' capacity in the following University of Newcastle Bachelor of Engineering Graduate Profile Statements (based on 2011 Engineers Australia revised Stage 1 Competency Standards for Professional Engineers - Graduate Attributes):

	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.**	☑	☑	☑	**1**
2	**1.2. Conceptual understanding of the, mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline.**	☑	☑	☑	**1**
3	**1.3. In-depth understanding of specialist bodies of knowledge within the engineering discipline.**	☑	☑	☑	**1**
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.**	☑	☑	☑	**1**
8	**2.2. Fluent application of engineering techniques, tools and resources.**	☑	☑	☑	**1**
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**				
12	**3.2. Effective oral and written communication in professional and lay domains.**				
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.**				

This course builds students capacity in the following University of Newcastle Bachelor of Computer Science Graduate Profile Statements:

	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.**	☑	☑	☑	**1**
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.**				
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.**				
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.**				
10	**Understanding of entrepreneurship; need of and process of innovation, as well as the need of and capacity for lifelong learning.**				

R. H. Middleton

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.