



MONASH University
Information Technology

FIT9017
Foundations of programming

Unit Guide

Semester 1, 2012

The information contained in this unit guide is correct at time of publication. The University has the right to change any of the elements contained in this document at any time.

Last updated: 15 Feb 2012

Table of Contents

<u>FIT9017 Foundations of programming - Semester 1, 2012</u>	1
<u>Mode of Delivery</u>	1
<u>Contact Hours</u>	1
<u>Workload</u>	1
<u>Unit Relationships</u>	1
<u>Prohibitions</u>	1
<u>Chief Examiner</u>	1
<u>Campus Lecturer</u>	1
<u>Caulfield</u>	1
<u>Gippsland</u>	2
<u>Academic Overview</u>	3
<u>Outcomes</u>	3
<u>Graduate Attributes</u>	3
<u>Assessment Summary</u>	3
<u>Teaching Approach</u>	3
<u>Feedback</u>	4
<u>Our feedback to You</u>	4
<u>Your feedback to Us</u>	4
<u>Previous Student Evaluations of this unit</u>	4
<u>Required Resources</u>	4
<u>Prescribed text(s)</u>	5
<u>Unit Schedule</u>	6
<u>Assessment Requirements</u>	7
<u>Assessment Policy</u>	7
<u>Assessment Tasks</u>	7
<u>Participation</u>	7
<u>Examinations</u>	7
<u>Examination 1</u>	7
<u>Assignment submission</u>	8
<u>Online submission</u>	8
<u>Extensions and penalties</u>	8
<u>Returning assignments</u>	8
<u>Resubmission of assignments</u>	8
<u>Referencing requirements</u>	8
<u>Other Information</u>	9
<u>Policies</u>	9
<u>Student services</u>	9
<u>Reading list</u>	10

FIT9017 Foundations of programming - Semester 1, 2012

This unit aims to provide students with the basic concepts involved in the development of well structured software using a programming language. It concentrates on the development of problem solving skills applicable to all stages of the development process. Students gain experience with the translation of a problem specification into a program design, and the implementation of that design into a programming language. The subject introduces software engineering topics such as maintainability, readability, testing, documentation, modularisation, and reasoning about correctness of programs. Students are expected to read and understand existing code as well as develop new code.

Mode of Delivery

- Caulfield (Evening)
- Gippsland (Off-campus)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

Students will be expected to spend a total of 12 hours per week during semester on this unit as follows:

- two-hour lecture and
- two-hour tutorial/laboratory requiring advance preparation
- a minimum of 2-3 hours of personal study per one hour of contact time in order to satisfy the reading and assignment expectations.

Unit Relationships

Prohibitions

CSE9000

Chief Examiner

Associate Professor Judithe Sheard

Campus Lecturer

Caulfield

Michael Smith, Consultation hours: To be advised.

FIT9017 Foundations of programming - Semester 1, 2012

Gippsland

Shane Moore

Consultation hours: To be advised.

Academic Overview

Outcomes

At the completion of this unit students will:

- be competent in designing, constructing, testing and documenting small computer programs using Java;
- be able to demonstrate the software engineering principles of maintainability, readability, and modularisation; and,
- understand the concepts of the object-oriented style of programming.

Graduate Attributes

Monash prepares its graduates to be:

1. responsible and effective global citizens who:
 - a. engage in an internationalised world
 - b. exhibit cross-cultural competence
 - c. demonstrate ethical values

critical and creative scholars who:

- a. produce innovative solutions to problems
- b. apply research skills to a range of challenges
- c. communicate perceptively and effectively

Assessment Summary

Examination (3 hours): 60%; In-semester assessment: 40%

Assessment Task	Value	Due Date
Assignment 1, Assignment 2 (Stage 1) & Assignment 2 (Stage 2)	40% total (15%, 5% & 20%)	Assignment 1 - 16 April 2012; Assignment 2 (Stage 1) - 7 May 2012 and (Stage 2) - 25 May 2012
Examination 1	60%	To be advised

Teaching Approach

Lecture and tutorials or problem classes

This teaching and learning approach provides facilitated learning, practical exploration and peer learning.

Feedback

Our feedback to You

Types of feedback you can expect to receive in this unit are:

- Informal feedback on progress in labs/tutes
- Graded assignments with comments

Your feedback to Us

Monash is committed to excellence in education and regularly seeks feedback from students, employers and staff. One of the key formal ways students have to provide feedback is through SETU, Student Evaluation of Teacher and Unit. The University's student evaluation policy requires that every unit is evaluated each year. Students are strongly encouraged to complete the surveys. The feedback is anonymous and provides the Faculty with evidence of aspects that students are satisfied and areas for improvement.

For more information on Monash's educational strategy, and on student evaluations, see:
<http://www.monash.edu.au/about/monash-directions/directions.html>
<http://www.policy.monash.edu/policy-bank/academic/education/quality/student-evaluation-policy.html>

Previous Student Evaluations of this unit

Over the past years in which the unit has been running, students have reported an overall satisfaction with the content and presentation of the unit's material.

If you wish to view how previous students rated this unit, please go to
<https://emuapps.monash.edu.au/unitevaluations/index.jsp>

Required Resources

Please check with your lecturer before purchasing any Required Resources. Prescribed texts are available for you to borrow in the library, and prescribed software is available in student labs.

In this unit we will use Java and the BlueJ development environment. This software is available on CD with the prescribed text book and is installed in the student computer labs at Caulfield campus

Also:

- Java software is freely available to download from Sun website at:
<http://java.sun.com/javase/downloads/>
- BlueJ is also freely available to download from the BlueJ site at: <http://www.bluej.org/>

You will be given instructions on how to use this in your first tutorial. You are expected to work in the BlueJ development environment.

Prescribed text(s)

Prescribed texts are available for you to borrow in the library.

Barnes and Kolling . (2011). *Objects First with Java* . (5th) Prentice Hall.

Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Introduction to FIT9017 and expectations; introduction to programming, basic OO concepts, objects, classes, attributes, behaviour, state and identity.	Note: Tutorials commence in Week 1
2	Class definition, fields, constructors, methods, parameter passing, variables, expressions, statements, assignment, primitive data types, arithmetic operators, strings, basic output.	
3	Selection (if and switch statements), conditions, relational & logical operators, shorthand operators, ++ operator, precedence, scope and lifetime, basic input.	
4	Object creation and interaction, abstraction, modularisation, class & object diagrams, object creation, primitive vs. object types, method calling, message passing, method signatures, method overloading.	
5	Class libraries, importing classes, collections, ArrayLists, arrays, iteration, pre and post test loops.	
6	Testing, unit testing, testing heuristics, regression testing, debugging.	
7	Class documentation, Javadoc, identity vs. equality, more on strings, sets and maps, conditional operator.	Assignment 1 due 16 April 2012
8	Information hiding, encapsulation, access modifiers, scoping, class variables, class methods, constants.	
9	Program design, design methods, responsibility-driven design, design documentation, testing a program, specifying a test strategy.	
10	Programming errors, exception handling, file I/O.	Assignment 2 (Stage 1) due 7 May 2012
11	Code quality, coupling, cohesion, refactoring, using the Java SDK	
12	Inheritance, superclasses, subclasses, subtypes, substitution, polymorphic variables, protected access, casting, wrapper classes, collection hierarchy.	Assignment 2 (Stage 2) due 25 May 2012
	SWOT VAC	No formal assessment is undertaken SWOT VAC
	Examination period	LINK to Assessment Policy: http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html

*Unit Schedule details will be maintained and communicated to you via your MUSO (Blackboard or Moodle) learning system.

Assessment Requirements

Assessment Policy

Faculty Policy - Unit Assessment Hurdles

(<http://www.infotech.monash.edu.au/resources/staff/edgov/policies/assessment-examinations/unit-assessment-hu>)

Assessment Tasks

Participation

- **Assessment task 1**

Title:

Assignment 1, Assignment 2 (Stage 1) & Assignment 2 (Stage 2)

Description:

These assignments will require students to design, write, test and document a program in Java.

Weighting:

40% total (15%, 5% & 20%)

Criteria for assessment:

These are individual assignments and must be entirely your own work.

Assessment of these assignments is by interview. You will be asked to demonstrate your system during an interview and can also expect to be asked to explain your system, your code, your design, discuss design decisions and alternatives and modify your code / system as required. Marks will not be awarded for any section of code or functionality that a student cannot explain or modify satisfactorily. (The marker may delete excessive comments in code before a student is asked to explain that code).

Further details on the tasks and requirements will be made available in the assignments' specifications. Arrangements regarding interviews will also be outlined in the assignments' specifications.

Due date:

Assignment 1 - 16 April 2012; Assignment 2 (Stage 1) - 7 May 2012 and (Stage 2) - 25 May 2012

Examinations

- **Examination 1**

Weighting:

60%

Length:

3 hours

Type (open/closed book):

Closed book

Electronic devices allowed in the exam:

None

Assignment submission

It is a University requirement

(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-procedures.html>) for students to submit an assignment coversheet for each assessment item. Faculty Assignment coversheets can be found at <http://www.infotech.monash.edu.au/resources/student/forms/>. Please check with your Lecturer on the submission method for your assignment coversheet (e.g. attach a file to the online assignment submission, hand-in a hard copy, or use an online quiz).

Online submission

If Electronic Submission has been approved for your unit, please submit your work via the VLE site for this unit, which you can access via links in the my.monash portal.

Extensions and penalties

Submission must be made by the due date otherwise penalties will be enforced.

You must negotiate any extensions formally with your campus unit leader via the in-semester special consideration process:

<http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html>.

Returning assignments

Students can expect assignments to be returned within two weeks of the submission date or after receipt, whichever is later.

Resubmission of assignments

There will be no resubmission of assignments.

Referencing requirements

Students must reference material used from other sources.

Other Information

Policies

Monash has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University's academic standards, and to provide advice on how they might uphold them. You can find Monash's Education Policies at:

<http://policy.monash.edu.au/policy-bank/academic/education/index.html>

Key educational policies include:

- Plagiarism
(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/plagiarism-policy.html>)
- Assessment
(<http://www.policy.monash.edu/policy-bank/academic/education/assessment/assessment-in-coursework-p>)
- Special Consideration
(<http://www.policy.monash.edu/policy-bank/academic/education/assessment/special-consideration-policy.h>)
- Grading Scale
(<http://www.policy.monash.edu/policy-bank/academic/education/assessment/grading-scale-policy.html>)
- Discipline: Student Policy
(<http://www.policy.monash.edu/policy-bank/academic/education/conduct/student-discipline-policy.html>)
- Academic Calendar and Semesters (<http://www.monash.edu.au/students/key-dates/>);
- Orientation and Transition (<http://www.infotech.monash.edu.au/resources/student/orientation/>);
and
- Academic and Administrative Complaints and Grievances Policy
(<http://www.policy.monash.edu/policy-bank/academic/education/management/complaints-grievance-policy>)
- Codes of Practice for Teaching and Learning
(<http://www.policy.monash.edu.au/policy-bank/academic/education/conduct/suppdocs/code-of-practice-tea>)

Student services

The University provides many different kinds of support services for you. Contact your tutor if you need advice and see the range of services available at www.monash.edu.au/students. For Sunway see <http://www.monash.edu.my/Student-services>, and for South Africa see <http://www.monash.ac.za/current/>

The Monash University Library provides a range of services and resources that enable you to save time and be more effective in your learning and research. Go to <http://www.lib.monash.edu.au> or the library tab in my.monash portal for more information. At Sunway, visit the Library and Learning Commons at <http://www.lib.monash.edu.my/>. At South Africa visit <http://www.lib.monash.ac.za/>.

Academic support services may be available for students who have a disability or medical condition. Registration with the Disability Liaison Unit is required. Further information is available as follows:

- Website: <http://monash.edu/equity-diversity/disability/index.html>;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus, or Student Community Services Department, Level 2, Building 2, Monash University, Sunway Campus
- Telephone: 03 9905 5704, or contact the Student Advisor, Student Community Services at 03 55146018 at Sunway

Reading list

The following may provide useful extra reading for this unit. Copies of these are available in the Caulfield Library (on reserve, one day loan or in the normal circulation).

Java Foundations, Lewis, De Pasquale & Chase, (Pearson Education), 2008

Big Java (4th edition), Cay Horstman (John Wiley & Sons), 2010

Java Programming - from Problem Analysis to Program Design (3rd edition), D. S Malik (Thomson), 2008

Thinking in Java (4th edition), Eckell (Prentice Hall), 2006

Absolute Java (3rd edition), Savitch (Addison Wesley), 2008