MONASH University
Information Technology

FIT1002
Computer programming

Unit Guide

Semester 1, 2011

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: 27 Feb 2011

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FIT1002 Computer programming - Semester 1, 2011

This unit will provide students with an overview of programming and its role in problem-solving and strategies for meeting user requirements and for designing solutions to programming problems. The fundamental programming concepts of the memory model, data types, declarations, expressions and statements, control structures, block structure, modules, parameters and input and output will be applied within the context of objects, attributes, methods, re-use, information-hiding, encapsulation and message-passing. Software engineering topics include maintainability, readability, testing, documentation and modularisation.

Mode of Delivery

- Berwick (Day)
- Caulfield (Day)
- Clayton (Day)
- Gippsland (Day)
- Gippsland (Off-campus)
- Sunway (Day)
- South Africa (Day)

Contact Hours

2 hrs lectures/wk, 2 hrs laboratories/wk, 1 hr tutorial/wk

Workload

For on campus students, workload commitments are:

- two hours of lectures
- one-hour tutorial class in a flat room without computers to discuss theoretical programming concepts and develop problem solving strategies
- two-hour laboratory (practical class) (requiring advance preparation)
- a minimum of 2-3 hours of personal study **per one hour of lecture time** in order to satisfy the reading, tute, prac and assignment expectations.
- You will need to allocate up to 5 hours per week in some weeks, for use of a computer, including time for newsgroups/discussion groups.

Off-campus students generally do not attend lecture, tutorial and laboratory sessions, however, you should plan to spend equivalent time working through the relevant resources and participating in discussion groups each week.

Unit Relationships

Prohibitions

CPE1001, CSE1202, GCO1811, MMS1801, MMS1802

Chief Examiner

Stephen Huxford

Campus Lecturer

Berwick

Ms Cheryl Howard

Caulfield

Stephen Huxford

Clayton

Prof David Green

Gippsland

Mr Shane Moore

South Africa

Ms Sheelagh Walton

Sunway

Ms Mylini Munusamy

Learning Objectives

At the completion of this unit students will have -
An understanding of:

- the relationship between a problem description and program design;
- the management of problems using recognised frameworks;
- the use of design representations;
- the semantics of imperative programs;
- the object oriented paradigm as represented by Java;
- the sequence of steps that a computer takes to translate source code into executable code; and
- primitive data types and basic data structures.

Developed attitudes that enable them to:

- adopt a problem-solving approach;
- recognise the importance of programming and documentation conventions;
- appreciate quality parameters in program development;
- accept the code of professional conduct and practice; and

- act in accordance with best practice, industry standards and professional ethics.

Developed the skills to:

- use diagrams to design solutions for programming problems;
- apply problem solving strategies;
- use pseudo-code to design algorithms;
- design object oriented solutions to simple problems using multiple user-defined classes;
- create and test programming solutions to problems using the Java programming language;
- edit, compile and execute a computer program;
- analyse and debug existing programs; and
- write a test plan.

Demonstrated the communication skills necessary to:

- produce formal documentation for a program; and
- explain an existing program.

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 - JAVA basics	5%	End of Lab week 4 (For OCL students end of week 4)
Assignment 2 - Designing a JAVA application involving several classes and array of objects	15%	5:00pm EST 27 May 2011
Test 1	10%	End of Lecture Week 6
VILLE Quizzes	10%	5:00pm EST Last day of semester
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
- Interviews
- Test results and feedback
- Quiz results
- Solutions to tutes, labs and assignments

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

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

Required Resources

Prescribed Text:
Java Foundations, Lewis, DePasquale and Chase 2Ed.
Peason 2011, ISBN-10: 0-13-705534-X

Java Development Kit, Version j2sdk-1_5_0_06 or later, Sun Microsystems, Inc.

Students should have access to at least one of the following Integrated Development Environments listed below.

The FIT1002 lecturers recommend jCreator for students with no programming experience. This is the development environment installed on all campus computers:

- **Jcreator** - jcreator LE v4.0 is a powerful IDE (Integrated Development Environment) for Java and is strongly recommended. It can be downloaded from the Web Site: http://www.jcreator.com/ Students are advised to download the freeware version. There is no need for the fuller facilities provided in JcreatorPro.

For students that have programming experience and wish to continue with programming as part of Bachelor of Computer Science or Bachelor of Software Engineering, we recommend:

- **Eclipse** (latest version) downloaded from http://eclipse.org.

Other development environments students that are available for students to use are:

- **jEdit** - Text editor written in Java which can auto indent and provides syntax highlighting for more than 130 languages. http://www.jedit.org/
- **BlueJ,** Version 2.1.2 Programming Development Environment. Although available on CD, version 2.1.3 can be downloaded from http://www.bluej.org

Unit Schedule

Week	Date*	Activities	Assessment
0	21/02/11		No formal assessment or activities are undertaken in week 0
1	28/02/11	Unit Administration and Introduction	Tutes and Labs begin
2	07/03/11	Algorithms, Variables and Data Types	
3	14/03/11	Using objects and classes, Math Class, String Class, Random Class and I/O	
4	21/03/11	Selection	Assignment 1 due end of lab session (For OCL students end of week 4) (5%)
5	28/03/11	Repetition	
6	04/04/11	Modularisation	Assessment Task 3: In-lecture Mid semester test (10%)
7	11/04/11	Classes and Objects	
8	18/04/11	Methods revisited	
Mid semester break			
9	02/05/11	Object references	
10	09/05/11	Arrays	
11	16/05/11	Case study: Multiple classes	
12	23/05/11	Campus specific week	Assignment 2 Due 5pm Fri 27th May (15%), Assessment Task 4: All ViLLE Quizzes Close 5:00pm EST Last day of semester (10%)
	30/05/11	SWOT VAC	No formal assessment

			is undertaken SWOT VAC

*Please note that these dates may only apply to Australian campuses of Monash University. Off-shore students need to check the dates with their unit leader.

Assessment Policy

To pass a unit which includes an examination as part of the assessment a student must obtain:

- 40% or more in the unit's examination, and
- 40% or more in the unit's total non-examination assessment, and
- an overall unit mark of 50% or more.

If a student does not achieve 40% or more in the unit examination or the unit non-examination total assessment, and the total mark for the unit is greater than 50% then a mark of no greater than 49-N will be recorded for the unit

Assessment Tasks

Participation

- **Assessment task 1**

  Title:
  Assignment 1 - JAVA basics
  Description:
  This assignment will aim to help you to develop programs in Java using classes and objects that are able to read input from the user and format output. You will also learn to use classes and their methods that are available from the Java library.
  Weighting:
  5%
  Criteria for assessment:
  Detailed assessment criteria will be issued along with the assignment.

  1. All programs must run and compile correctly. Evidence of testing is required.
  2. Programs must meet the problem specification
  3. JAVA code should be readable and maintainable and follow the style recommended in the prescribed text book.
  4. Programs should be documented
  5. Students should be able to answer questions about their own work

  Due date:
  End of Lab week 4 (For OCL students end of week 4)

- **Assessment task 2**

  Title:
  Assignment 2 - Designing a JAVA application involving several classes and array of objects
  Description:

This assignment will require students to use the selection and iteration control structures and methods. Students will also be expected to design UML class diagrams and write Java code to solve a problem that will involve many classes and an array of objects.

Weighting:

15%

Criteria for assessment:

Detailed assessment criteria will be issued along with the assignment.

1. All programs must run and compile correctly. Evidence of testing is required.
2. Programs must meet the problem specification
3. JAVA code should be readable and maintainable and follow the style recommended in the prescribed text book.
4. Programs should be documented
5. Students should be able to answer questions about their own work during an interview scheduled outside the lab class

Due date:

5:00pm EST 27 May 2011

- **Assessment task 3**

Title:

Test 1

Description:

This unit will have a mid-semester test in week 6. On-campus students will sit the test in the lecture, off-campus student will sit the test online via MUSO. The test will include all topics covered in lectures in weeks 1-5.

Weighting:

10%

Criteria for assessment:

Due date:

End of Lecture Week 6

- **Assessment task 4**

Title:

VILLE Quizzes

Description:

Students will be expected to complete 10 quizzes that will help then to read and trace code. The quizzes from weeks 3-12 will be available online and will be graded automatically. Each week a new quiz will be released and students are expected to complete the quiz prior to the lab.

Weighting:

10%

Criteria for assessment:

Assessment will be achieved automatically, via the quiz assessment tool.

Due date:

5:00pm EST Last day of semester

Examinations

- **Examination 1**

  Weighting:
  60%
  Length:
  3 hours
  Type (open/closed book):
  Closed book
  Electronic devices allowed in the exam:
  None

Assignment submission

Assignment coversheets are available via "Student Forms" on the Faculty website:
http://www.infotech.monash.edu.au/resources/student/forms/
You MUST submit a completed coversheet with all assignments, ensuring that the plagiarism declaration section is signed.

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

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-po
- 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.

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 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. Students who have a disability or medical condition are welcome to contact the Disability Liaison Unit to discuss academic support services. Disability Liaison Officers (DLOs) visit all Victorian campuses on a regular basis

- Website: http://adm.monash.edu/sss/equity-diversity/disability-liaison/index.html;
- Telephone: 03 9905 5704 to book an appointment with a DLO;
- Email: dlu@monash.edu
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus.

READING LIST

For all students:

Malik D.S., *Java Programming - From Analysis to Design.*, Thomson Learning 2006, ISBN 0619216085

Robertson LA, *Simple Program Design*, 5th ed., Thomson/Nelson, 2007, ISBN 017010704-3

For student with advanced programming skills:

Arnold K., Gosling J. & Holmes D., *The Java Programming Language*, Fourth Edition, Addison-Wesley, Upper Saddle River, NJ, 2006. ISBN 0-321-34980-6 (paperback)