



**MONASH** University  
Information Technology

**FIT5151**  
**Object-oriented business application development**

**Unit Guide**

**Semester 2, 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.

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# **FIT5151 Object-oriented business application development - Semester 2, 2011**

FIT5151 will aim at capitalising on what students have learned in FIT9017 Foundations of programming (or equivalent). The unit covers more in-depth material to enable students to build business applications that follow good Software Engineering principles of maintainability, reusability and expandability. The emphasis will be on helping students acquire solid object-oriented programming knowledge and skills for building business applications. Popular object-oriented design patterns will be introduced whenever appropriate to illustrate effective design process in building larger systems.

## **Mode of Delivery**

Caulfield (Day)

## **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:

- Lectures: 2 hours per week
- Tutorials/Lab Sessions: 2 hours per week per tutorial
- and up to an additional 8 hours in some weeks for completing lab and project work, private study and revision.

## **Unit Relationships**

### **Prerequisites**

FIT9017 or equivalent

### **Chief Examiner**

Dr Judithe Sheard

### **Campus Lecturer**

### **Caulfield**

**Michael Smith**

Contact hours: To be advised

# Academic Overview

## Learning Objectives

At the completion of this unit, students will have -

A knowledge and understanding of:

- how to produce well-run, well-tested and well-documented object-oriented software by following solid software engineering principles of maintainability, reusability and expandability;
- effective use of popular object-oriented design patterns in the design process of larger systems;
- how to effectively and efficiently develop object-oriented application solutions to business-related problem specifications.

Developed attitudes that enable them to:

- appreciate the responsibility of coming up with well-tested and documented programs;
- appreciate the need to maintain ethical conducts when programming by making sure the code used my program is their own or taken from a legitimate source with full acknowledgement.

Gained practical skills to:

- navigate around in an Integrated Development Environment in order to efficiently produce quality applications;
- develop good software testing strategies.

Demonstrated the communication skills necessary to:

- work in a team to come up with an integrated business software solution

explain their design and testing strategies in writing and in person through interviews.

## 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	20%	Week 7 - Friday 9 September, 2011
Assignment 2	20%	Week 12 - Friday 21 October, 2011
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

### 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

*Objects First with Java* (4th Edition), Barnes and Kolling (Prentice Hall), 2009

## Academic Overview

You will need access to:

- Java SE 6 (download from [www.sun.com](http://www.sun.com))
- Firefox or Internet Explorer
- The BlueJ development IDE. This installed in the student labs at Caulfield campus and are available freely for download from the BlueJ website: <http://www.bluej.org/index.html>

## Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in week 0
1	Programming Concepts and Java - variables, operators, expressions, control structures, recursion, class structure, collections, primitive types, object types, exceptions, I/O, file I/O	Note: Tutorial labs commence in Week 1 of semester
2	Object oriented Concepts - classes, objects, methods, attributes, message passing, constructors, inheritance, polymorphism, encapsulation, visibility, abstraction, packages, interacting classes, association, aggregation, composition	
3	Inheritance - subclasses, subtyping, substitution, overriding, types of inheritance, access modifiers	
4	Inheritance - abstract classes, multiple inheritance, interfaces, inner classes, enumerations.	
5	Testing, testing tools (JUnit)	
6	GUI - event handling, components, layout, AWT and Swing libraries	
7	Persistence: Java database connectivity, more file I/O	Assignment 1 due Friday 9 September, 2011
8	Program Design - design techniques (responsibility driven design), Parnas' principles, design representation (UML)	
9	Program design - coupling and cohesion, Law of Demeter, Design by Contract, Assertions, Refactoring	
10	Design Patterns - decorator, singleton, factory, observer, etc., frameworks	
11	Software development methodologies, agile methods	
12	Bringing it all together	Assignment 2 due Friday 21 October, 2011
	SWOT VAC	No formal assessment is undertaken SWOT VAC
	Examination period	LINK to Assessment Policy: <a href="http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html">http://policy.monash.edu.au/policy-bank/academic/education/assessment/assessment-in-coursework-policy.html</a>

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

# Assessment Requirements

## 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

**Description:**

The design and implementation of an application employing the principles introduced in the early to mid part of the semester.

Details will be made available in the assignment specification.

**Weighting:**

20%

**Criteria for assessment:**

**This is an individual assignment and must be entirely your own work.**

Submissions will be judged on their compliance with the stated functional requirements, code and design principles presented in the unit.

Assessment of this assignment is by interview. You will be asked to demonstrate your system at an interview in the week following the submission date. At the interview you 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).

Interview times will be arranged in the tutorial labs immediately preceding the submission deadline. **It is your responsibility to attend the lab and obtain an interview time.**

*Students who do not attend an interview will receive 0 marks for the assignment.*

**Due date:**

Week 7 - Friday 9 September, 2011



- **Assessment task 2**

**Title:**

Assignment 2

**Description:**

The design and implementation of an application employing the principles introduced in the mid to later part of the semester.

Details will be made available in the assignment specification.

**Weighting:**

20%

**Criteria for assessment:**

**This is an individual assignment and must be entirely your own work.**

Submissions will be judged on their compliance with the stated functional requirements, code and design principles presented in the unit.

Assessment of this assignment is by interview. You will be asked to demonstrate your system at an interview in the week following the submission date. At the interview you 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).

Interview times will be arranged in the tutorial labs immediately preceding the submission deadline. **It is your responsibility to attend the lab and obtain an interview time.**

*Students who do not attend an interview will receive 0 marks for the assignment.*

**Due date:**

Week 12 - Friday 21 October, 2011

## 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).

## **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

## 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](http://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](mailto:dlu@monash.edu)
- Drop In: Equity and Diversity Centre, Level 1 Gallery Building (Building 55), Monash University, Clayton Campus.

### 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

Other Information

*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