



MONASH University
Information Technology

FIT5151
Object-oriented business application development

Unit Guide

Semester 2, 2010

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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Table of Contents

<u>FIT5151 Object-oriented business application development - Semester 2, 2010</u>	1
<u>Chief Examiner:</u>	1
<u>Lecturer(s) / Leader(s):</u>	1
<u>Caulfield</u>	1
<u>Introduction</u>	2
<u>Unit synopsis</u>	2
<u>Learning outcomes</u>	2
<u>Contact hours</u>	3
<u>Workload</u>	3
<u>Unit relationships</u>	3
<u>Prerequisites</u>	3
<u>Teaching and learning method</u>	4
<u>Teaching approach</u>	4
<u>Timetable information</u>	4
<u>Tutorial allocation</u>	4
<u>Unit Schedule</u>	4
<u>Unit Resources</u>	6
<u>Prescribed text(s) and readings</u>	6
<u>Recommended text(s) and readings</u>	6
<u>Required software and/or hardware</u>	6
<u>Equipment and consumables required or provided</u>	6
<u>Study resources</u>	6
<u>Assessment</u>	7
<u>Overview</u>	7
<u>Faculty assessment policy</u>	7
<u>Assignment tasks</u>	7
<u>Examination</u>	8
<u>Due dates and extensions</u>	9
<u>Late assignment</u>	9
<u>Return dates</u>	9
<u>Feedback</u>	9
<u>Appendix</u>	11

FIT5151 Object-oriented business application development - Semester 2, 2010

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Introduction

Welcome to FIT5151 IT in Organizations for semester 2, 2010. This 6 point unit is one of the four units in the Business Application Development Professional Track of the Masters in Business Information Systems degree programs in the Faculty of IT. The unit has been designed to help you acquire the fundamental skills in software development in the object-oriented environment for business applications. The Java programming language will be used to meet this goal.

The unit is an on-campus unit and as such is structured, taught and assessed on the assumption that ALL students who choose to enrol can, and will, attend ALL classes.

Unit synopsis

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.

Learning outcomes

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.

Contact hours

2 hrs lectures/wk, 2 hrs laboratories/wk

Workload

As a guideline, the workload commitments for an "on campus student" are:

- two-hour lecture and
- two-hour tutorial (or 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.
- 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.

Unit relationships

Prerequisites

FIT9017 or equivalent

Teaching and learning method

Teaching approach

The teaching and learning of the FIT5151 is structured around the material and information provided on the unit web site. Most of the material will be the traditional manner around lectures and laboratory-based workshops and supported by the prescribed text for the unit.

Your learning is also supported by some additional resources on the MUSO-based web site.

Timetable information

For information on timetabling for on-campus classes please refer to MUTTS, <http://mutts.monash.edu.au/MUTTS/>

Tutorial allocation

On-campus students should register for tutorials/laboratories using the Allocate+ system: <http://allocate.its.monash.edu.au/>

Unit Schedule

Week	Date*	Topic	References/Readings	Key dates
1	19/07/10	Programming Concepts and Java - variables, operators, expressions, control structures, recursion, class structure, collections, primitive types, object types, exceptions, I/O, file I/O (mostly revision of FIT9017)	Barnes and Kolling - sections of Ch 1, Ch 2, Ch 3, Ch 4	Note: Lecture topic sequence and due dates for assessment tasks may be subject to change as semester progresses ----- Tutorials commence in Week 1 of semester
2	26/07/10	Object oriented Concepts - classes, objects, methods, attributes, message passing, constructors, inheritance, polymorphism, encapsulation, visibility, abstraction, packages, interacting classes, association, aggregation, composition (mostly revision of FIT9017)	Barnes and Kolling - sections of Ch 1, Ch 2, Ch 3, Ch 5, Ch 8; Budd - Ch 1, Ch 2, Ch 4, Ch 5	
3	02/08/10	Inheritance - subclasses, subtyping, substitution, overriding, types of inheritance, access modifiers, wrapper classes	Barnes and Kolling - sections of Ch 8, Ch 9; Budd - Ch 8, Ch 13	
4	09/08/10	Inheritance - abstract classes, multiple inheritance, interfaces, inner	Barnes and Kolling - Ch 10; Budd - Ch 8, Ch 13	

FIT5151 Object-oriented business application development - Semester 2, 2010

		classes, enumerations		
5	16/08/10	Testing, testing tools (JUnit) and debugging	Barnes and Kolling - Ch 6, Ch 12.7, Appendix G	
6	23/08/10	GUI - event handling, components, layout, AWT and Swing libraries	Barnes and Kolling - Ch 11	
7	30/08/10	Java database connectivity, File I/O		Assignment 1 due
8	06/09/10	Program Design - design techniques (responsibility driven design), Parnas' principles, design representation (UML)	Barnes and Kolling - Ch 13; Budd - Ch 3	
9	13/09/10	Program design - coupling and cohesion, Law of Demeter, Design by Contract, refactoring	Barnes and Kolling - Ch 7; Budd - Ch 3, Ch 23.1	
10	20/09/10	Design Patterns - decorator, singleton, factory, observer, etc., frameworks	Barnes and Kolling - Ch 13.7; Budd - Ch 24, Ch 21	
Mid semester break				
11	04/10/10	Software development methodologies, agile methods	Barnes and Kolling - Ch 11	
12	11/10/10	Beyond OO/Case Study	Barnes and Kolling - Ch 14	Assignment 2 due
13	18/10/10	Revision and Exam Preparation		

*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.

Unit Resources

Prescribed text(s) and readings

Objects First with Java (2009) by Barnes, D.J. & Kölling, M., Pearson Education Limited, 4th edition.

An introduction to object-oriented programming (2002) by Timothy A. Budd., Addison-Wesley, 3rd edition.

Recommended text(s) and readings

Online books:

- Refactoring [electronic resource] : improving the design of existing code / Martin Fowler ; with contributions by Kent Beck ... [et al.]. Addison-Wesley, 1999. Full text available from Safari textbooks online.

Required software and/or hardware

You will need access to:

- Java SE 6 (download from www.sun.com)
- Firefox or Internet Explorer
- The BlueJ development IDE. This is installed in the student labs at Caulfield campus and is available freely for download from the BlueJ website.

Equipment and consumables required or provided

Students may use the facilities available in the computing labs. Information about computer use for students is available from the ITS Student Resource Guide in the Monash University Handbook.

Study resources

Study resources we will provide for your study are:

- Weekly detailed lecture notes outlining the learning objectives, discussion of the content, required readings and references;
- Weekly tutorial or laboratory tasks and exercises.
- Assignment specifications.
- This Unit Guide outlining the administrative information for the unit;
- The unit web site on MUSO, where resources outlined above will be made available.
- Sample examination paper.

Assessment

Overview

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

Faculty 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.

Assignment tasks

Assignment coversheets

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.

Assignment submission and return procedures, and assessment criteria will be specified with each assignment.

Assignment submission and preparation requirements will be detailed in each assignment specification. 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>.

• Assignment 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.

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 - date to be advised in the assignment specification.

• **Assignment 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.

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 - date to be advised in the assignment specification.

Examination

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Weighting:

60%

Length:

3 hours

Type (open/closed book):

Closed book

Electronic devices allowed in the exam:

None

See Appendix for End of semester special consideration / deferred exams process.

Due dates and extensions

Please make every effort to submit work by the due dates. It is your responsibility to structure your study program around assignment deadlines, family, work and other commitments. Factors such as normal work pressures, vacations, etc. are not regarded as appropriate reasons for granting extensions. Students are advised to NOT assume that granting of an extension is a matter of course.

Students requesting an extension for any assessment during semester (eg. Assignments, tests or presentations) are required to submit a Special Consideration application form (in-semester exam/assessment task), along with original copies of supporting documentation, directly to their lecturer within two working days before the assessment submission deadline. Lecturers will provide specific outcomes directly to students via email within 2 working days. The lecturer reserves the right to refuse late applications.

A copy of the email or other written communication of an extension must be attached to the assignment submission.

Refer to the Faculty Special consideration webpage or further details and to access application forms: <http://www.infotech.monash.edu.au/resources/student/equity/special-consideration.html>

Late assignment

If you believe that your assignment will be delayed because of circumstances beyond your control such as illness you should apply for an extension before the due date. Medical certificates or certification supporting your application may be required. Assignments submitted after the due date may incur a penalty for lateness. An assignment submitted more than seven days after the due date may be given a score of zero. If you anticipate being late then discuss the situation with your unit lecturer as early as possible; your unit lecturer will decide how many marks you will be penalised for each day your assignment is late, and whether or not any extension is warranted.

Assignments received after the due date will normally be subject to a penalty of **10% per day, including weekends**. Assignments received later than one week (seven days) after the due date will not normally be accepted. In some cases, this period may be shorter if there is a need to release sample solutions.

This policy is strict because comments or guidance will be given on assignments as they are returned, and sample solutions may also be published and distributed, after assignment marking or with the returned assignment.

Return dates

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

Feedback

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

Informal feedback on progress in labs/tutes

Graded assignments with comments

Interviews

Appendix

Please visit the following URL: <http://www.infotech.monash.edu.au/units/appendix.html> for further information about:

- Continuous improvement
- Unit evaluations
- Communication, participation and feedback
- Library access
- Monash University Studies Online (MUSO)
- Plagiarism, cheating and collusion
- Register of counselling about plagiarism
- Non-discriminatory language
- Students with disability
- End of semester special consideration / deferred exams