



The University of Southern Queensland

## Course specification

The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>.  
Please consult the web for updates that may occur during the year.

### Description: Advanced Programming in Java

| Subject | Cat-nbr | Class | Term    | Mode | Units | Campus    |
|---------|---------|-------|---------|------|-------|-----------|
| CSC     | 8416    | 96048 | 3, 2009 | EXT  | 1.00  | Toowoomba |

|                                   |        |
|-----------------------------------|--------|
| <b>Academic group:</b>            | FOSCI  |
| <b>Academic org:</b>              | FOS003 |
| <b>Student contribution band:</b> | 2      |
| <b>ASCED code:</b>                | 020103 |

### STAFFING

Examiner: Hua Wang  
Moderator: Yan Li

### REQUISITES

Pre-requisite: Students must be enrolled in one of the following Programs: BINH or GCAC or GCPC or GDAC or GDPC or MCOP or MPIT or MPCP or GCEN or GDET or METC

### RATIONALE

Java is not only an internet language, but also a general purpose object-oriented programming language. Its portability, safety, and simplicity features made it the internet language of choice overnight. It is quickly becoming a programming language that every programmer and computer scientist should know. This course will teach not only the Java programming language, but also the Java programming style and the topics on advanced software design using Java and Java's internet programming.

### SYNOPSIS

This course covers the techniques of object-oriented programming in Java, and the characteristics of the Java programming language. The language features such as applets, packages, exception handling and multithreading with concurrent programming are discussed. Java graphical user interface and animation tools are important parts of this course. The advanced topics such as network programming and client/server and Remote Method Invocation (RMI) as well as Java Database Connection (JDBC) are introduced with an executable example.

### OBJECTIVES

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

1. demonstrate a deep understanding of various object-oriented design techniques (Project Proposal, Assignment 1);
2. develop object-oriented applications in Java (Project Proposal, Assignment 1);
3. design Java applet for internet applications (Assignment 1);

4. develop current programming applications with multithreading (Assignment 1);
5. develop Java graphical interfaces and animation tools (Assignment 1);
6. develop advanced software applications using JDBC and Client/Server technologies (Assignment 1, Final Project Report);
7. understand and use distributed system programming with RMI (Assignment 1, Final Project Report).

## TOPICS

|    | Description  | Weighting (%) |
|----|--|---------------|
| 1. | OO concepts and structures in JAVA                   | 10.00         |
| 2. | Java programming and Advanced data structures        | 5.00          |
| 3. | Threads and concurrent programming                   | 15.00         |
| 4. | Java applet programming with security and Multimedia | 15.00         |
| 5. | Graphical user interface design                      | 15.00         |
| 6. | Input, output and files                              | 10.00         |
| 7. | Java Database Connectivity (JDBC)                    | 10.00         |
| 8. | Network Client/Server programming                    | 10.00         |
| 9. | Distributed system programming with RMI              | 10.00         |

## TEXT and MATERIALS required to be PURCHASED or ACCESSED

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at <http://bookshop.usq.edu.au> click 'Semester', then enter your 'Course Code' (no spaces).

Department of Mathematics & Computing CDROM SET 1, 2009 (available from the USQ Bookshop). This CD Set contains course material, Windows and Linux Software relevant to this course offering only. For more information about the CD Sets and their use, please refer to <http://www.sci.usq.edu.au/cdrom> and the course web site.

## REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Many other books and tutorials are available on the Internet. We will provide the links to these sites.

Berg, DJ & Fritzing, SJ 1999, *Advanced Techniques for Java Developers*, John Wiley & Sons Inc, New York.

Cornell, G & Horstmann, G 2005, *Core Java 2*, 7th edn, Sun Microsystems Press, Upper Saddle River, NJ, Vol 1.

Cornell, G & Horstmann, G 2000, *Core Java 2*, Sun Microsystems Press, Upper Saddle River, NJ, Vol 2.

Daconta, MC, Saganich, A & Monk, E 1999, *Java2 and JavaScript for C and C++ Programmers*, Wiley, New York.

(Revised Edition)

Deitel, H, Deitel, P & Santry, S 2002, *Advanced Java 2 Platform - How to Program*, Prentice-Hall, Upper Saddle River, NJ.

(ISBN:130895601)

## STUDENT WORKLOAD REQUIREMENTS

| ACTIVITY      | HOURS  |
|---------------|--------|
| Private Study | 120.00 |
| Project Work  | 50.00  |

## ASSESSMENT DETAILS

| Description          | Marks out of | Wtg (%) | Due date    |
|----------------------|--------------|---------|-------------|
| PROJECT PROPOSAL     | 20.00        | 20.00   | 15 Dec 2009 |
| ASSIGNMENT 1         | 20.00        | 20.00   | 12 Jan 2010 |
| FINAL PROJECT REPORT | 60.00        | 60.00   | 02 Feb 2010 |

## IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:  
There are no attendance requirements for this course. However, it is the students' responsibility to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.
- 2 Requirements for students to complete each assessment item satisfactorily:  
Students must submit all assessment items. To complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available for each assessment item.
- 3 Penalties for late submission of required work:  
If students submit assignments after the due date without (prior) approval of the examiner then a penalty of 5% of the total marks gained by the student for the assignment may apply for each working day late up to ten working days at which time a mark of zero may be recorded. No assignments will be accepted after model answers have been posted.
- 4 Requirements for student to be awarded a passing grade in the course:  
To be assured of receiving a passing grade a student must achieve at least 50% of the available marks for the summative assessment items.
- 5 Method used to combine assessment results to attain final grade:  
The final grades for students will be assigned on the basis of the aggregate of the weighted marks obtained for each of the summative assessment items in the course.
- 6 Examination information:

- There is no examination in this course.
- 7 Examination period when Deferred/Supplementary examinations will be held:  
There will be no Deferred or Supplementary examinations in this course.
  - 8 University Regulations:  
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL <http://www.usq.edu.au/corporateservices/calendar/part5.htm> or in the current USQ Handbook.

## **ASSESSMENT NOTES**

- 9 The due date for an assignment is the date by which a student must dispatch the assignment to the USQ. The onus is on the student to provide proof of the dispatch date, if requested by the Examiner.
- 10 In accordance with University policy, the Examiner may grant an extension of the due date of an assignment in extenuating circumstances.
- 11 Students must retain a copy of each item submitted for assessment. If requested, students may be required to provide a copy of assignments submitted for assessment purposes. Such copies should be dispatched to USQ within 24 hours of receipt of a request to do so.

## **OTHER REQUIREMENTS**

- 1 Note on Project: Students will develop an application or a mini-project using Java. The project will be assessed on Project Proposal (aims and motivation, research plan, 2 pages). Final project report plus coding (10-15 pages).
  - 2 Students need to discuss their project with the Examiner via e-mail.
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