



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: Object-Oriented Design with UML

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
CSC	8418	90226	2, 2009	ONC	1.00	Toowoomba

Academic group:	FOSCI
Academic org:	FOS003
Student contribution band:	2
ASCED code:	020305

STAFFING

Examiner: Michael de Raadt
Moderator: Yan Li

REQUISITES

Pre-requisite: Students must be enrolled in one of the following Programs: MCOP or MPIT

OTHER REQUISITES

Recommended Pre-requisite: CSC2402 and CSC2407 and CSC8416

RATIONALE

As object-oriented techniques rapidly become the standard for systems development throughout the computing industry, development methodologies based on earlier structured programming techniques have been found to be inadequate. A number of modelling techniques that support the object-orient analysis and development paradigms have been published, and have been adopted by object developers world wide. Students will be expected to gain a solid understanding of object-oriented modelling requirements and the principles in analysis, design and programming, and be able to appraise the suitability of methodologies and techniques for particular problem domains.

SYNOPSIS

This course introduces object-oriented methods for analysing a problem domain and creating an implementation independent formal representation of the system requirements, from which an object-oriented design of the system is then constructed. Issues involved in the process of transforming an OO analysis of a system into an OO design and implementation are studied in the context of a large software project in an application domain and implementation platform of the student's own choosing. Students will be provided with the knowledge and skill in the latest concepts in object-oriented analysis and object-oriented design, coupled with the most comprehensive OO modelling language and notation such as Unified Modelling language (UML), plus implementation with the Java programming language. Students will be given the opportunity

to study the methodologies for applying these fundamental concepts through project work to develop a variety of distributed application systems.

OBJECTIVES

On completion of this course students will be able to:

1. demonstrate an understanding of several variations on the terminology, fundamental concepts and models for object-oriented software systems (Project Plan);
2. demonstrate the ability to apply the steps in OOA/OOD using a variety of approaches (Project Plan and Analysis Phase);
3. understand the elements of the Unified Modelling Language (UML) and how each element maps to a corresponding step or concept in the OO software development process (Analysis Phase);
4. understand how the Java language supports and has influenced OO and specific elements of modelling languages, as well as steps in the OO software development process (Analysis Phase and Project Design Phase);
5. take an OO software development process through iterative refinement steps using OOA/OOD methods, modelling languages and prototyping in Java (Project Design Phase and Project Software and Documentation);
6. apply the OOA/OOD/OOP techniques for building real-world software systems (Project Design Phase and Project Software Documentation).

TOPICS

	Description	Weighting (%)
1.	Introduction to OO Modelling and Vocabulary of Object Technology	10.00
2.	An application-driven, iterative-incremental, and architecture-oriented life style for software development	15.00
3.	Introduction to Unified Modelling Languages	15.00
4.	Suitability of the above OOA/D techniques and methodologies to various problem domains	15.00
5.	Applying an OO methodology and techniques to a particular domain using UML	35.00
6.	Techniques for implementing from an OO design using Java language and arranging to access database using the Java Database Connectivity	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).

Introductory Book 2008, *Course CSC4405 Object-Oriented Design with UML & Java*, USQ Distance e-Learning Centre, Toowoomba.

Oestereich, Bernd 2002, *Developing Software with UML Object-Oriented Analysis and Design in Practice*, 2nd edn, Addison-Wesley, Harlow.

Selected Readings 1 2008, *Course CSC4405 Object-Oriented Design with UML & Java*, USQ Distance and e-Learning Centre, Toowoomba.

Study Book 1 2008, *Course CSC4405 Object-Oriented Design with UML & Java*, USQ Distance and e-Learning Centre, Toowoomba.

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.

Bennett, S., McRobb, S. & Farmer, R 1999, *Object-Oriented Systems Analysis and Design Using UML*, The McGraw Hill Company, London.

Berg, D.J. & Fritzing, J 1999, *Advanced Techniques for Java Developers, Rev. Edn.*, John Wiley & Sons, New York.

Harman P. & Watson M 1998, *Understanding UML: The Developer's Guide*, Morgan Kaufmann, San Francisco.

Jacobson, I., Booch, G. & Rumbaugh, J 1999, *The Unified Software Development Process*, Addison-Wesley, Reading.

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Lectures	26.00
Private Study	40.00
Project Work	80.00
Tutorials	26.00

ASSESSMENT DETAILS

Description	Marks out of	Wtg (%)	Due date
ASSIGNMENT 1	10.00	10.00	15 Aug 2008
ASSIGNMENT 2	20.00	30.00	12 Sep 2008
ASSIGNMENT 3	25.00	30.00	03 Oct 2008
ASSIGNMENT 4	45.00	30.00	03 Nov 2008

IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:

It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and 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:
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 total weighted marks available for the course.
 - 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 despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner. If requested, students will be required to provide a copy of assignments submitted for assessment purposes. Such copies should be despatched to USQ within 24 hours of receipt of a request being made.

OTHER REQUIREMENTS

- 1 Students will be required to have access to a CASE tool for UML and Java software (available from <http://java.sun.com/products/>).
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