

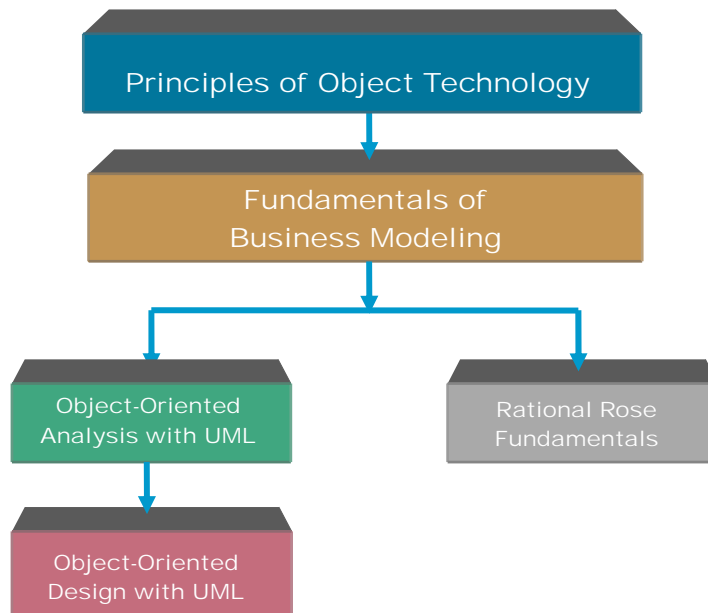
*The University of Calgary*  
*Department of Electrical and Computer Engineering*

## **SENG 609.23 – Object Oriented Analysis and Design Course Outline**

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(Revision 1.02)

### **Course Description and Outline**

In this course, the students will learn how to produce detailed object models and designs from system requirements; use the modeling concepts provided by UML; identify use cases and expand them into full behavioral designs; expand the analysis into a design ready for implementation and construct designs that are reliable. The course begins with an overview of the object oriented analysis and design. The following figure shows the flow of the course.



The following topics are presented:

1. Principles of object technology

- Introduction to Object Technology
- Principles of Object Orientation
- Principles of Modeling with UML
- Modeling System Behavior with Use-Cases
- Finding Classes
- Object Collaborations
- Interaction Diagrams; Class Diagrams; State Diagrams

2. Fundamentals of business modeling

- Introduction to Business Modeling
- Using the Unified Modeling Language
- Business Modeling Process
- From Business Models to System Models
- Project Examples

3. Fundamentals of Rational Rose

- Rose Modeling Basics
- Constructing Use-Case Model in Rose
- Use-Case Realization Structure
- Interaction Diagrams; Class Diagrams
- Introduction to Round-Trip Engineering

4. Object-oriented analysis with UML

- Modeling System Behavior with Use Cases
- Analysis and Design Overview
- Architectural Analysis
- Distribute Behavior to Classes
- Describe the Analysis Class
- Review the Analysis Model

5. Object-oriented design with UML

- Identify Design Elements
- Identify design mechanisms
- Incorporate Existing Design Elements
- Describe the Run-time Architecture
- Describe Distribution
- Patterns
- Use-Case Design
- Subsystem Design
- Class Design: Class Structure, modeling states, class relationships
- Implementation overview
- Structure the implementation model

## Course Textbook

Course documents and viewgraphs are delivered on each session. A CDROM of distributed documents will be delivered on demand.

## Course Web Site

The SENG 609.23 course home page contains links to up-to-date course information, problem assignments announcements, as well as laboratory and examination scheduling. The SENG 609.23 course home page is available through the B.H. Far's home page at the URL:

<http://www.enel.ucalgary.ca/People/Far/Lectures/SENG609-23/>

## Projects and Laboratories

During the course the students are supposed to design a moderately realistic object oriented system. A list of projects that the students can select among them will be posted on the course WWW page. The reports (design documents) of various phases of the assigned project should be handed in for check and marking. The reports are reviewed and a group discussion will be held towards the end of the course. Also the students are supposed to prepare a tutorial report on various topics related to OOA and OOD and present it to the class. A typical list of topics for tutorial report about will be posted on the course WWW site.

## Allocation of Marks

Evaluation is based on tutorial and project reports.

Tutorial Report:	30%
Evaluation Exam:	20%
Laboratories (project):	50%

Watch the SENG609.23 course homepage regularly for updates, if any, to this assignment.

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**FACULTY OF ENGINEERING  
UNIVERSITY OF CALGARY**  
***POLICY FOR IMPLEMENTATION OF FOIP REQUIREMENTS***

Protection of Student Examinations and Course Work Under the  
Freedom of Information and Protection of Privacy Act of the Province of Alberta

The following outlines the Faculty of Engineering policy that will ensure that examinations and term-work of students in engineering courses are protected with respect to privacy. The philosophy behind the policy is that marked student examinations and term-work (hereafter called "student's work") should be available only to the student and to staff in the Faculty of Engineering who have a need to see the material. This includes academic staff, graduate assistants and support staff.

1. All student's work will be returned in class, laboratories, or tutorials. (hereafter called classrooms), as appropriate.
2. Staff members will take reasonable steps to supervise the return of the student's work in classrooms. It is not required that each student be called up by name to receive his/her work.
3. The person returning the student's work in the classroom has the right to see identification from the student before the work is returned.
4. Material that is not collected by a student during the first occasion when it is brought back to a classroom will be returned to the classroom at reasonable intervals by a staff member.
5. Students shall not approach instructors, graduate students or support staff in their offices to pick up their work.
6. Term-work not picked up by a student at the end of the term shall be retained on file by the department responsible for the course for a period of one year. The Faculty will retain final-examination papers for a period of one year.
7. Any student's work that may be exposed to the view of other students shall not have the grade or mark displayed on the front page.
8. A student's name and U of C ID number shall not both be written by the student on the cover page of any work submitted for evaluation.
9. A student shall not pick up any marked work that does not belong to the student.
10. This statement shall be attached to every course outline handed out in the Faculty of Engineering. Departments may attach additional statements to courses controlled by them.