

Course Outline

Course Description

This course caps a series of several software development and programming courses that started with CIS*1500 and included courses on object oriented design, algorithms and data structures. This course introduces software engineering processes and tools to deal with the complexity involved in designing, implementing and testing of large scale software systems that may involve tens of developers. We will emphasize open-source and distributed development models.

Course Objectives

By the end of the course, students will be able to:

- analyze client requirements and formulate use cases
- reverse engineer a design through code inspection and reverse engineering tools
- produce design specifications using appropriate tools (e.g. UML)
- describe and compare different software development methodologies
- master version control and concepts such as branching and merging
- apply verification and validation strategies to software development
- write documentation for software projects
- work effectively as part of a medium to large development team

Why?

“Software development is no longer bound by time zones or national borders. Projects of all kinds—academic, commercial, and open source—may have their GUI designers in Boston, their database team in Bangalore, and their testers in Budapest and Buenos Aires. Working effectively in such teams is challenging: it requires strong communication skills, and makes proper use of coordination tools such as version control and ticketing systems more important than ever.” – Undergraduate Capstone Open Source Projects, <http://ucosp.ca/about/>

Contacts

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Course Website

We will use the Courselink system to distribute course materials and make announcements. Please check the course website right away to make sure you have access.

<http://courselink.uoguelph.ca>

Course Format and Organization

- The course will have two lectures per week: Tu, Thu 14:30 - 15:50 ROZH 108
- There are several labs in the course meant to familiarize students with software engineering tools. The labs will be followed by a lab exam which will test proficiency in software use.
Labs and help sessions are scheduled: Thu 11:30 - 1:20 THRN 2336 Note the change of lab room.
We will not have a lab every week, so it is important to watch the course website for announcements.
- Instructor's office hours: Thursdays 16:00 - 17:00 THRN 2413 or by appointment.
- There will be 4 assignments. You will work in teams of approximately 6-7 students for all assignments. Teams will be announced in the first or second week of the term.
- There is a final exam, scheduled during the regular exam period.

Course Prerequisites

- (CIS*2420 or CIS*2520), ENGG*2100

Recommended Text

There is no required textbook for the course. However, the following text is a useful reference:

Bernd Bruegge and Allen H. Dutoit, "Object-Oriented Software Engineering", 3rd edition, Prentice Hall, 2010.

You will also find it useful to consult a UML reference book from time to time. The following book is recommended:

Martin Fowler, "UML Distilled: A Brief Guide to the Standard Object Modeling Language", 3rd edition, Addison-Wesley, 2003.

The above books are on reserve at the library. You'll need to refer to other books and readings throughout the course – we will provide pointers as needed.

Attendance at Lectures and Labs

Attendance at lectures is mandatory. Much material and interpretation is covered during lectures that is not present in textbooks or other resources.

Your TA will be grading your assignments. Therefore it is important to attend the labs and seek help from your TA. The labs will cover background material and introducing more practical aspects of the course not covered in lectures. The labs are also a good time to meet with your teams face-to-face. As required, we will shorten the labs to allow time for group meetings.

Communication and Email Policy

Please use lectures and lab help sessions as your main opportunity to ask questions about the course. Major announcements and/or changes will be posted to the course website. **It is your responsibility to check the course website regularly.**

Electronic communication should be limited to the course forum, however topics of a personal and confidential nature (e.g. marks) should be emailed to the instructor: gwtaylor@uoguelph.ca. Please note that **all email communication must be made through your University of Guelph email account** (i.e. <username>@uoguelph.ca).

Evaluation

There are four practical assignments, one lab test, and one final exam. **Please note that dates are approximate and not yet finalized.** Final dates will be posted on the course website.

Task	%	Topic	Due Date (tentative)
Assignment 1	5	Reverse Engineering & Design Recovery	October 2
Assignment 2	10	Implementing Change Requests	October 23
Lab Test	20	All Material Covered in Lectures and Labs To-date	October 25
Assignment 3	10	Requirements Analysis	November 13
Assignment 4	15	Build and Test a New Feature	November 29
Final Exam	40	All Course Material	December 3

The assignments are all team assignments. Each team will submit a single report for each assignment. All members of a team will receive the same grade for the assignment, except in exceptional circumstances at the discretion of the instructor. Detailed instruction on the content of each assignment will be handed out during the term.

Due dates for the assignments are firm. Assignments must be submitted in person, within ten minutes of the start of the lecture on the specified date (i.e. by 14:40).

If you have questions about the grade your assignment received, please ask your TA. However, all requests for remarking must be made to the instructor.

Policy on Late Assignments and Missed Tests

Generally, when you find yourself unable to meet a course requirement such as an assignment or a test as a result of compassionate, illness or physiological reasons, a formal explanation must be made in writing to the instructor and (where possible) proper documentation must be provided. This should be done prior to an exam or assignment (if possible) or as soon as possible but definitely within a week after the exam or assignment due date. If no explanations are provided, exams receive a grade of zero and assignments are subject to the following deductions:

- 25% will be deducted if the assignment is up to 24 hours late,
- 50% will be deducted if the assignment is 24 to 48 hours late,
- No assignments will be accepted 48 or more hours after the due date.

If any of the due dates above is unacceptable based on foreseeable circumstances (e.g. on religious grounds) it is your responsibility to notify the instructor **within the first two weeks of lectures** so that an accommodation can be made.

University Policy on Academic Misconduct

Academic misconduct, such as plagiarism, is a serious offence at the University of Guelph. It is your responsibility to consult the Undergraduate Calendar 2011-2012 and School of Engineering program guide, for offences, penalties and procedures relating to academic misconduct: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Do not use another team's solution. To avoid problems, discuss with fellow students from other teams only general approaches to assignment solutions; do not take notes during such discussions.

Disclaimer

The instructor reserves the right to change any or all of the above in the event of appropriate circumstances, subject to the University of Guelph Academic Regulations.