BCEE 232
Programming for Building and
Civil Engineers I
Course Outline - Winter 2009

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Lectures	(Section V) Monday 11:34-13:14 at H-535
Office Hours	(Section V) Monday 10:25-11:25 at EV7.628

Objectives

The main objective of this course is to empower students with the capability to program computers for engineering computations. After completing this course, students will be well prepared for tackling interesting basic programming problems. Students will be prepared to use computers for non-trivial engineering computation that is required in courses such as mathematics, numerical methods, engineering analysis and design. The course will cover elements of procedural programming (e.g., variables and scope, primitive and derived data types, operators and expressions, control structures, and functions), elements of object-oriented programming (e.g., classes, objects, member functions, data members, function overloading and function templates), basic data structures and design patterns (e.g., arrays, vectors, recursion, and iteration).

After finishing this course, students are expected to:

- Be capable to design, manage, and implement small-scale procedural programs in C++.
- Have a working knowledge of C++ and important tools including editors, debuggers, syntax checkers, program libraries, etc.
- Understand the basic concepts of object-oriented programming.

The weekly lecture will cover course contents while the tutorial will provide examples. Students will be expected to spend significant amount of time each week to do "hands on" work with computers, to review course material, to read assigned sections of the textbook, and to write programming assignments.

Prerequisite: BCEE 231. Students without the prerequisite must have permission of the instructor.

Textbook and Website

- C++: How to Program (6th Edition), P. J. Deitel and H. M. Deitel, Prentice Hall, 2007. ISBN-13: 978-0136152507
- Web Site: http://www.ciise.concordia.ca/~fung/BCEE232/. Check the website and your e-mails for important notices, lecture notes, marks, tutorials, etc.

Computing Facilities

You should obtain a computer account for BCEE 232 from the Help Desk office at H-960. This account will give you access to the laboratory, which is equipped with PCs and needed software for the course.

If you have a computer at home and prefer to use it, you may do so. However, you must be aware that your programs must compile and run correctly with the same version used at the laboratory. In this course, we will use Visual Studio 2008.

Workload and Grading

The course has a reasonable amount of load, with several new concepts and a fair bit of programming workload. Therefore, you should be prepared to spend adequate time and effort on this course. The grading of the course is as follows:

Participation: 5%

> Attend all the lectures and lab sessions.

Assignments: 20%

> There will be 3 programming assignments. The assignments are very important since through them you will get most of your practical programming experience. All assignments will be available at the website (see below for details), where they will have to be retrieved; that is there will be no distribution of hardcopies of the assignments. Please note that all assignments will be placed on the website no hardcopies of the assignments will be distributed in class.

Midterm Exam: 25%

> There will be one midterm exam. The date for the exam will be announced at the beginning of the term. The midterm will cover all material presented in the lectures, the textbook, and in the assignments, up to and including the lecture preceding the exam. There is no substitution to a missing midterm, so you must make sure that you write that exam at its scheduled time.

Final Exam: 50%

> The final exam will be scheduled by the University Exam's office. The exam will cover material from the entire semester, including lectures, textbook, and assignments. Passing the final exam is necessary for passing the course.

> **Important:** There is no substitution to a missing exam, so you must make sure that you write that exams at their scheduled time. You may ask for a make-up exam or later submission of assignments ONLY under a university-approved condition, such as sickness with a doctor's note. Other events such as a business travel cannot be an excuse. You need to inform the instructor as early as possible, unless it is an emergency. Note that, your request is not accepted, until you receive an explicit confirmation from me. Do keep the confirmation as a proof.

The grading of the course will be done based on the relative percentages assigned to the assignments and the exams. For reasons of fairness, we may choose to scale up/down the marks in a particular exam or assignment to ensure that all aspects of the course receive a fair weight. Any such "fine-tuning" will be made known to you before the final grades are assessed. ==Finally, there are no pre-set cutoff points for the final grades; the cutoff points will be decided based on an assessment of difficulty level, class performance, fairness, and instructor's wisdom from teaching and grading the course in the past. That is, there is no definite rule for translation of number grades to letter grades.==

Important Notes

Laptops and other communication devices, such as cellular phones and text/video messaging devices have to be turned off during the lectures.

Website and other Resources

A mailing list will be established for the course. You should register to this mailing list ASAP. To register, please link to: https://mail.encs.concordia.ca:444/mailman/listinfo/bcee232-w09.

The webpage for the course is http://www.ciise.concordia.ca/~fung/BCEE232/. The webpage will contain announcements related to the class, pointers to documents, class notes, assignments, etc. The username and password required to access the course webpage will be provided in class.