

Carleton University
Faculty of Engineering & Design
ECOR 1010: Introduction to Engineering
Fall 2017 – Course Outline

Fall Term:	Lectures 4 hours per week, laboratory 2 hours per week
Faculty Instructors:	Glenn McRae
Laboratory TA Manager:	Xiaozhou (Joe) Zhang
Reverse Engineering Project TA:	TBA
3D Print Manager:	Stephan Biljan – 2230ME

Course Description (from Undergraduate Calendar):

ECOR 1010 [0.5 credit]

Introduction to Engineering

Technology, society and the environment. Graphical design communication: sketching, graphical projections, CAD; Managing data: statistical methods; spreadsheets. Design analysis: matrix programming software; symbolic computer algebra systems. Design process: proposals; reports; presentations; reporting software.

Course Structure

A week-by-week lecture schedule, with laboratory assignments, and important deadline dates is available on the ECOR 1010 cuLearn web site (See document: Lecture Schedule 2017). Lectures will be presented by Prof. G. McRae, and various guest lecturers.

The course consists of two interrelated series of lectures. The two 1.5-hour lectures each week will introduce the engineering knowledge required for the weekly laboratory assignments; corresponding textbook chapters are included in the Lecture Schedule.

The 1-hour TSE lecture each week (the green lines in the Lecture Schedule) is devoted to presentations on Technology, Society and the Environment. Several Guest Lectures will present many of the TSE lectures. The mid-term and final exams will include questions from all lectures.

Textbook: “Introduction to Engineering”, 8th edition ISBN-13: 9781323776971

By the end of this course, students should be able to:

- explain engineering measurements and errors, and convert engineering units
- perform calculations accounting for measurement errors
- analyse data using engineering statistics
- describe the engineering design process
- implement the engineering design process
- (re)design a simple object to meet specified needs under given constraints
- implement 3D printing techniques
- interpret standard engineering drawings
- create engineering models and drawings using CAD software
- implement various engineering software tools (including spreadsheets, matrix programming, symbolic computer algebra)
- generate engineering reports and design documentation
- describe the roles and responsibilities of professional engineers (professionalism, ethics, health and safety, protection of the public and the public interest)
- describe the impact of engineering/technology on society and the environment

Grading:	Reports (Laboratory Assignments)	17.5 %
	Reverse Engineering Project	10 %
	Work Smart Campus	2.5%
	Midterm Exam	20 %
	Final Exam	50 %

There is the possibility of obtaining 4 % bonus marks if more than 7 Laboratory Assignments are completed with a mark of greater than or equal to 5/10, as described in 'Note #1' below.

Office Hours: TBD

Important Notes Regarding this Course:

- 1) To obtain a passing grade in the course, 7 of 9 Laboratory Assignments must be completed, each with a mark of at least 1 out of 10; Laboratory Assignments with marks less than 1 out of 10 will not count as one of the required seven labs. If fewer than 7 Laboratory Assignments are completed with grades of at least 1/10, then a grade of "FND" in the course will result. If more than 7 assignments are completed, the best 7 marks on the assignments completed will be used for calculation of the final grade. If 8 Laboratory Assignments are completed with a mark greater than or equal to 5/10, then a bonus of 2 % will be given. If all 9 Laboratory Assignments are completed with a mark greater than or equal to 5/10, then an additional bonus of 2 % will be given.
- 2) Laboratory Assignments in the form of electronic MicroSoft Word documents uploaded to cuLearn are due 30 minutes after the start of the next laboratory period, unless your lab is scheduled on a holiday, in which case special instructions will be provided. No other form of electronic document will be accepted – if your assignment cannot be read with MicroSoft Word, then it will not be accepted. Late submission of assignments will NOT be accepted.

- 3) Laboratory Assignments shall conform to professional standards of engineering practice, specifically the Code of Ethics for the Professional Engineers of Ontario (PEO) (http://www.peo.on.ca/index.php/ci_id/1815/la_id/1.htm), which will be presented during class lectures and during the Problem Analysis (PA) sessions: students are expected to have read the Code of Ethics, which forms the core of professional engineering practice. In accord with the Code of Ethics: all submitted reports shall “give proper credit for engineering work”. Failure to provide proper credit could result in zero marks for the Reports component of the course. As an example, a student submitting work done by other people as his or her own work would not be following the Code of Ethics. It is a requirement of the course that **all** submitted Laboratory Assignments conform to the PEO Code of Ethics. Thus, the final mark for the Reports component of the course will depend on whether all of the submitted Laboratory Assignments conformed to the PEO Code of Ethics. Minimum two-grade point reductions in final letter grades can be expected by students found guilty of academic offenses (e.g., C+ becomes a C, a grade of D becomes an F.) Cheating includes copying from others, which includes copying labs from previous years, and allowing others to copy from you.
- 4) The Reverse Engineering ‘Design’ Project must be completed to obtain a passing grade in the course. The Reverse Engineering Project is due Dec. 1 at 16:30 in the ECOR 1010 slot of the grey filing cabinet in the hall at 3135ME. Late submission of the Reverse Engineering Project will NOT be accepted. It is the responsibility of all Design team members to ensure the project is submitted on time: all team members will receive FND if the project is not submitted on time. The Reverse Engineering Project deliverables shall conform to the PEO Code of Ethics as described above.
- 5) The underlying theme of Professional Engineering is Public Safety. An important component of engineering involves workplace safety. SafeSmart provides an overview of Ontario’s health and safety legislation. It is compulsory that you complete SafeSmart by Dec. 7 at 16:30. You can find SafeSmart on cuLearn, it takes ≈3 hours to complete, but it does not have to be done all at one time. Late completion of SafeSmart will NOT be accepted. Failure to meet the Dec. 7 deadline will result in a course grade of “FND”. As this test can be taken at anytime up to the due date, no excuse of any kind will be accepted for failure to meet the deadline.
- 6) Failure to write the Midterm exam will result in a course grade of “FND”. If you miss the midterm exam you should immediately contact Prof. McRae.
- 7) The Midterm and Final Exam will be “Closed Book”; no calculators will be permitted. A ‘Formula’ sheet will be provided. The Exams is for assessment purposes only and will not be returned to students.
- 8) Failure to write the Final exam will result in a course grade of “F”. The final exam schedule will be available sometime in October/November. Students should not make holiday travel plans until the final exam schedule is available. Examination accommodation for travel plans will NOT be made. If a medical problem or other emergency prevents you from writing the final exam, you must contact the Registrar’s Office within 24 hours of the final exam time/date.

COURSE POLICIES

Academic Integrity:

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensure that a degree from Carleton University is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. Carleton University's Policy on Academic Integrity (<http://www.carleton.ca/studentaffairs/academic-integrity>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. It is your responsibility to be familiar with these policies. Students who do not behave with academic integrity will face severe consequences including immediate referral to the Associate Dean of Student Affairs. If found to be guilty, penalties will be applied ranging from reduced marks to suspension from the university.

Professional Behaviour in Class

In order to ensure that all classes are carried out in a quiet and respectful environment that allows all students to learn effectively, please adhere to the following expectations. Failure to meet behavioural expectations may result in a request to leave the meeting and/or course.

- Be on time for class. Plan for the possibility of transport delays. If you are late, minimize disruption to both the instructor and other students by being quiet and finding a seat quickly.
- Laptops and mobile devices are permitted to facilitate active learning; however, please ensure that mobile devices are set to silent mode to avoid disrupting the class. Also, please do not use electronic devices to access games, facebook, twitter or other non-course-related material because it is a distraction to other students.
- If you feel affected by the behaviour of other students, then please let your Teaching Assistant or Prof McRae know about your concerns as soon as possible so that they can be addressed promptly.
- No recording of lectures is permitted without permission of the instructor.

Course Material Copyright and Distribution

All course materials, including PowerPoint presentations, outlines, and other materials, are protected by copyright and remain the intellectual property of their respective author(s).

Students registered in the course may take notes and make copies of course materials for their own educational use only. Students are not permitted to reproduce or distribute lecture notes and course materials publicly for commercial or non-commercial purposes without express written consent from the copyright holder(s).

Academic Accommodation

Students with diverse learning styles and needs are welcome in this course.

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

Pregnancy obligation: please contact Equity Services, or me if you prefer, to make requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: <http://www2.carleton.ca/equity/>

Religious obligation: please contact Equity Services, or me if you prefer, to make requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: <http://www2.carleton.ca/equity/>

Academic Accommodations for Students with Disabilities: The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your ***Letter of Accommodation*** at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (*if applicable*). **Requests made within two weeks will be reviewed on a case-by-case basis.** After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website (www.carleton.ca/pmc) for the deadline to request accommodations for the formally-scheduled exam (*if applicable*).

You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at <http://www2.carleton.ca/equity/>