ECOR 1010
Introduction to Engineering

Lecture 1

Glenn McRae PhD, P.Eng. & Henry Saari PhD, P.Eng

Who am I?
(besides your instructor)

- Glenn McRae, Ph.D. (UBC), P.Eng.
- Joined Mech & Aero Eng. Dept. at Carleton in July 2009
- Previously worked at
  - Jet Propulsion Laboratory (Caltech) for 3 yrs
  - Atomic Energy of Canada Ltd. for 22 yrs.
- Current Research:
  - Cracking of metals used in nuclear reactors
  - New methods to image bone cancers
  - Calibration source for SPECT imaging
  - Targets for cyclotron production of 99m-Tc
  - Novel dosimeters for blood irradiation to stop graft-versus-host disease
  - Methods to predict end-of-life of liners inside beer cans, et al.
  - Biofuel from organic wastes

Also teach: MAAE 2400 Thermodynamics & Heat Transfer;
MAAE 4906C Corrosion;
MAAE 4906E and MECH 5203 Nuclear Engineering

Who am I?
(besides your instructor)

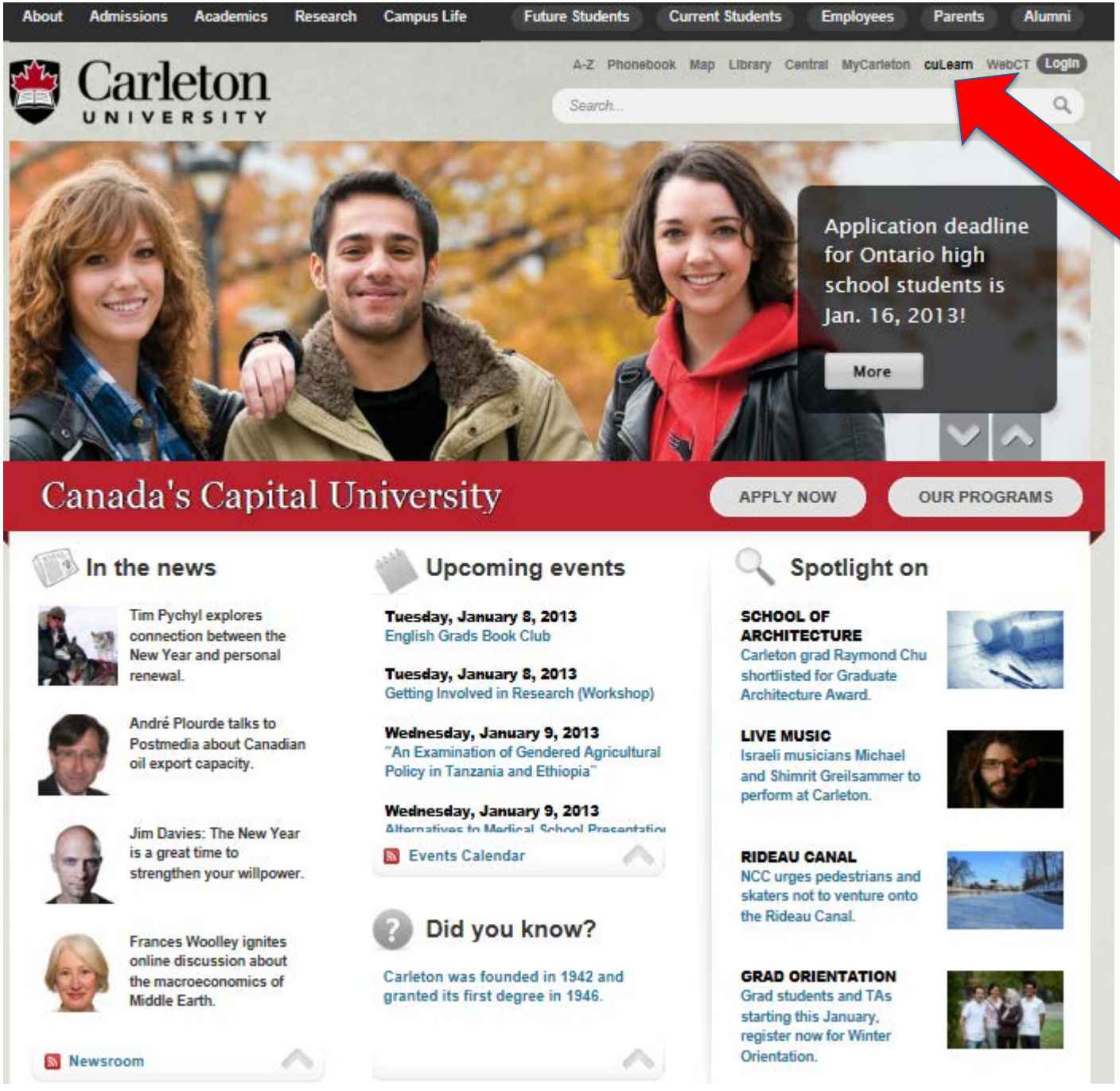
- Henry Saari, Ph.D. (Carleton), P.Eng.
- Joined Mech & Aero Eng. Dept. at Carleton in July 2003
  - Started B.Eng (Aerospace) in September 1991
- Previously worked at
  - Husky Injection Molding Systems
  - National Research Council (graduate studies)
- Current Research:
  - Gas turbine materials (titanium aluminides, superalloys)
    - Processing (powder metallurgy, casting, brazing, and heat treatment)
    - Properties (hardness, tensile, creep, thermal)
  - Corrosion of materials in supercritical carbon dioxide
  - Supercritical carbon dioxide Brayton cycle development

Have taught:

MAAE2001 Engineering Graphical Design
MAAE2101 Engineering Dynamics
MAAE3004 Dynamics of Machinery
MECH4003 Mechanical System Design
4th year projects: Underground Mining Vehicle, FASE, Gas Turbine

cuLearn

- For ECOR 1010:
  - Lecture slides
  - Support materials
  - Laboratory assignments (9) (download and upload)
  - Project assignment (1) (download only)
  - Marks
- Access via link on https://carleton.ca/culearn/
- Login: same as your **cmail account**
  - Password is set by student upon registration
- Online help available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Application deadline for Ontario high school students is Jan. 16, 2013!
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Tim Pychyl explores connection between the New Year and personal renewal.
André Plourde talks to Postmedia about Canadian oil export capacity.
Jim Davies: The New Year is a great time to strengthen your willpower.
Frances Woolley ignites online discussion about the macroeconomics of Middle Earth.
Newsroom
Upcoming events
Tuesday, January 8, 2013
English Grads Book Club
Tuesday, January 8, 2013
Getting Involved in Research (Workshop)
Wednesday, January 9, 2013
"An Examination of Gendered Agricultural Policy in Tanzania and Ethiopia"
Wednesday, January 9, 2013
Events Calendar
Did you know?
Carleton was founded in 1942 and granted its first degree in 1946.
Spotlight on
SCHOOL OF ARCHITECTURE
Carleton grad Raymond Chu shortlisted for Graduate Architecture Award.
LIVE MUSIC
Israeli musicians Michael and Shimrit Greilsammer to perform at Carleton.
RIDEAU CANAL
NCC urges pedestrians and skaters not to venture onto the Rideau Canal.
GRAD ORIENTATION
Grad students and TAs starting this January, register now for Winter Orientation.

cuLearn

cmail Account

- Must acquire a “cmail” account to access cuLearn
  - Should have it already
- Visit: www.carleton.ca
  - Click on MyCarleton button and sign up
- Help is available at the campus help desk: ccs_service_desk@carleton.ca
  - or Tel: 613-520-3700


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MyCarleton

Carleton Central

- Registration Services
- Your Timetable
- Student Accounts
- Course Grades
- Mailing Information
- University Records

cmail Accounts

- You are provided with a Carleton University email address
  - Emails to instructors must only be done with your university email account (no Hotmail, Gmail, etc.)
- You need a cmail account to use computer labs and printers

ECOR 1010: Course Objectives

Calendar Description: 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.

- To introduce “engineering”
- 5 major components to ECOR 1010:
  - Professional Practice
  - Health and Safety
  - Engineering Analysis
  - Engineering Design
  - Technology, Society and the Environment (TSE)

ECOR 1010: Lectures and Labs
(Course Outline on cuLearn)

- **Lectures:**
  - Two 1.5 h lectures per week (25 Lectures)
    - Professional Practice & Health and Safety
    - Engineering Analysis
    - Engineering Design
  - One 1 h lecture per week (10 Lectures)
    - Technology, Society & Environment (TSE)

- **Labs:**
  - Two hours per week (9 Labs plus the Project)

Course Outline:

Available on cuLearn

Shown here is only the first page. Go to cuLearn and read the complete updated course outline carefully !

Carleton University

Faculty of Engineering & Design

ECOR 1010: Introduction to Engineering

Fall 2014 – Course Outline

Fall Term:	Lectures 4 hours per week, laboratory 2 hours per week
Faculty Instructors:	Glenn McRae and Henry Saari
Laboratory TA Manager:	(TBD)
Reverse Engineering Project TA:	(TBD)
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.
Lectures four hours per week, laboratories two hours per week.

Course Structure

A week-by-week lecture schedule, laboratory assignments, and important deadline dates are available on the ECOR 1010 CULearn web site.

As indicated on the Lecture & Laboratory Schedule (available on the ECOR 1010 CULearn web site), lectures will be presented by Profs. G. McRae and H, Saari, 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. However, the corresponding textbook chapters (as indicated on the Lecture & Laboratory Schedule) will have to be independently studied to successfully complete most of the laboratory assignments. The one 1-hour lecture each week (the green lines on the Lecture & Laboratory Schedule) is devoted to presentations related to Technology, Society and the Environment (TSE). 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", 7th edition ISBN# 1256362719

Lecture & Lab Schedule:

Available on cuLearn

Look at Due Dates

Reading Assignments

The TSE lecture topics after the midterm will be made available later: check cuLearn for updates

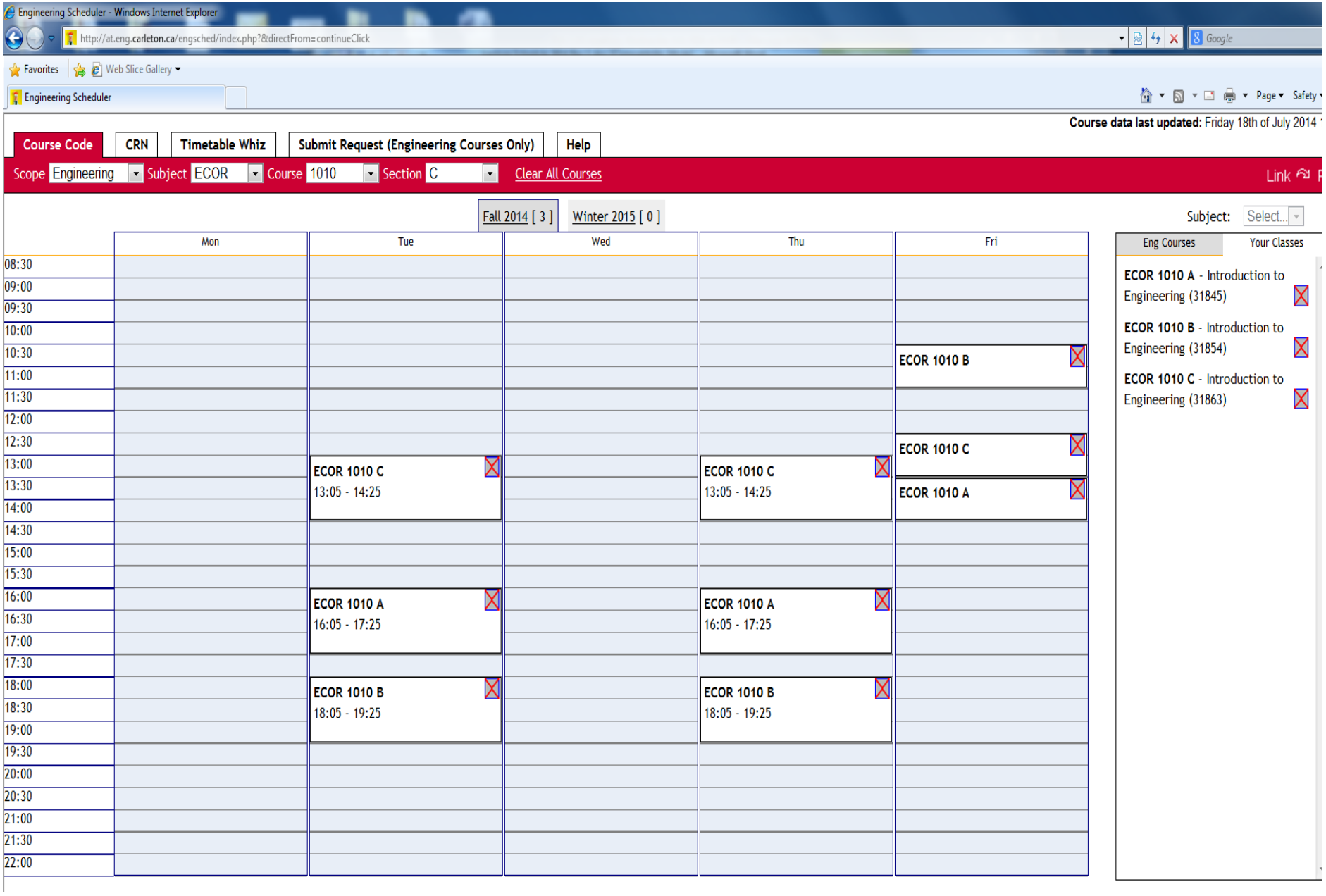
If there are any discrepancies between the due dates listed in the schedule and elsewhere, the due dates in the schedule are to be taken as correct. Please ask if you are not sure of the due dates.

ECOR 1010 Lecture & Laboratory Schedule – Fall Term 2014

Revision 1 – Sept

Date (Lecture)	Lecture	Lecturers	Topic	Read Chapters	Laboratories & Due Dates*
Sept. 4 (1.5 h)	Lect. 1	McRae/Saari	Course Intro - Design Project	1 to 3	
Sept. 5 (1 h)	**TSE† 1**	**McRae**	**What Will You Do To Help Society?**		
Sept. 9 (1.5 h)	Lect. 2	McRae	Engineering Introduction		Week of Sept 8
Sept. 11 (1.5 h)	Lect. 3	Saari	Engineering Reporting & Measurements	10	Lab Zero: Orientation
Sept. 12 (1 h)	**TSE 2**	**McRae**	**Energy & Sustainability**	**9**	
Sept. 16 (1.5 h)	Lect. 4	Saari	Measurements, Units & Errors	11	Week of Sept 15
Sept. 18 (1.5 h)	Lect. 5	Saari	Engineering Graphics - 1	12	Lab. 1 Engineering Reporting
Sept. 19 (1 h)	**TSE 3**	**McRae**	**Engineers & Sustainability**		
Sept. 23 (1.5 h)	Lect. 6	Saari	Engineering Graphics - 2	13	Week of Sept. 22
Sept. 25 (1.5 h)	Lect. 7	Saari	Engineering Graphics - 3	14	Lab. 2 Units, Dimensions & Sig. Figs
Sept. 26 (1 h)	**TSE 4**	**McRae**	**Problems without Technical Solutions**		
Sept 30 (1.5 h)	Lect. 8	Saari	Design & IntelliCAD	15	Week of Sept 29
Oct. 2 (1.5 h)	Lect. 9	Saari	Creo, 3D Printing & Rapid Prototyping	16 & 17	Lab. 3 IntelliCAD & 2D Drawing
Oct. 3 (1 h)			No Lecture		
Oct. 7 (1.5 h)	Lect. 10	Saari	Review for Mid-Term		Week of Oct. 6
Oct. 9 (1.5 h)			**Mid-Term: Material from Lect. 1 to 9 & TSE 1 to 4**		Lab. 4 Creo Solid Modelling & STL File Preparation – 3D Printing 2230ME
Oct. 10			No Lecture		
Oct. 14 (1.5 h)	Lect. 11	McRae	Engineering Statistics I: Measures of central tendency, histograms	11 & 18	Week of Oct. 13 (Oct 13 is a holiday) Project: Creo Solid Modelling & STL File Preparation
Oct. 16 (1.5 h)	Lect. 12	"	Engineering Statistics II: Measures of spread, probability distributions	19, 21 to 23	
Oct. 17 (1 h)	**TSE 5**	***TBD***			
Oct. 21 (1.5 h)	Lect. 13	McRae	Estimating Population Means, Confidence Limits	19, 24	Week of Oct. 20 Project: Creo Solid Modelling & STL File Preparation
Oct. 23 (1.5 h)	Lect. 14	"	Regression and Correlation I	20, 25	**Project STL files due Friday Oct. 24 at 16:30**
Oct. 24 (1 h)	**TSE 6**	***TBD***			
Oct. 27 –Oct. 31			MidTerm Break - No Classes		
Nov. 4 (1.5 h)	Lect. 15	McRae	Regression and Correlation II	20, 25	Week of Nov. 3
Nov. 6 (1.5 h)	Lect. 16	"	Linear Systems in Engineering and Introduction to MATLAB: Vectors & Scalars	29	Lab. 5 Univariate Data
Nov. 7 (1 h)	**TSE 7**	***TBD***			
Nov. 11 (1.5 h)	Lect. 17	McRae	MATLAB I: Matrices & Matrix Operations	30, 32	Week of Nov. 10
Nov. 13 (1.5 h)	Lect. 18	"	MATLAB II: Programming & Plotting	31	Lab. 6 Bivariate Data and Regression
Nov. 14 (1 h)	**TSE 8**	***TBD***			
Nov. 18 (1.5 h)	Lect. 19	McRae	Maple: Symbolic Manipulation of Equations and Calculus	33 to 37	Week of Nov. 17
Nov. 20 (1.5 h)	Lect. 20	Saari	Departmental Presentations I		Lab. 7 MATLAB I: Matrix Operations, Presentation of 3D Models
Nov. 21 (1 h)	**TSE 9**	***TBD***			
Nov. 25 (1.5 h)	Lect. 21	Saari	Departmental Presentations II		Week of Nov. 24
Nov. 27 (1.5 h)	Lect. 22	McRae	Engineering as a Profession	4 & 5	Lab. 8 MATLAB II: Programming in MATLAB, Presentation of 3D Models
Nov. 28 (1 h)	**TSE 10**	***TBD***			**Reverse Engineering Design Project Report Due Nov. 28 at 16:30 in ECOR 1010 slot, orange cabinet in hall at 3135ME**
Dec. 2 (1.5 h)	Lect. 23	McRae	Health & Safety	7 & 8	Week of Dec. 1
Dec. 4 (1.5 h)	Lect. 24	McRae	Wrap-Up & Review	**WorkSmart Campus transcript must be uploaded to cuLearn by 16:30 on Dec. 5**	Lab. 9 Maple, Symbolic Computations, Presentation of 3D Models
Dec. 5			No Lecture		
Dec. 8			**Lab. 9 must be uploaded to cuLearn by 16:30 on Dec. 8**		

* All due dates-times are FIRM. Late submissions will NOT be accepted.
† TSE – These lectures will present specific topics related to Technology, Society and the Environment.
†† *TBD* – to be determined: the titles of the talks, and names of the presenters, will be given at a later date


Engineering Scheduler - Windows Internet Explorer
http://at.eng.carleton.ca/engsched/index.php?&directFrom=continueClick
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Course data last updated: Friday 18th of July 2014
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Eng Courses
Your Classes
ECOR 1010 A - Introduction to Engineering (31845)
ECOR 1010 B - Introduction to Engineering (31854)
ECOR 1010 C - Introduction to Engineering (31863)

ECOR 1010: Labs

- Labs are held in Rooms 2256 ME & 5010 MC
  - Attend Your Lab period
  - 55+ workstations – all software required for this course
  - Also Canal Building room 2201 has 31 top-rate machines, but to use these you need to follow 5010 MC protocol.

ECOR 1010: Labs

Labs Hours:
During Monday to Friday, only use 2256 ME and 5010 MC during your lab session, unless there is no scheduled lab session. The lab schedule will be posted outside of the lab.

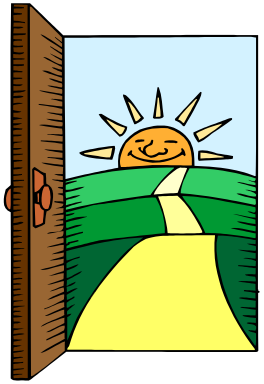
Canal Building room 2201 can be used anytime.

Access to Room 2256ME and Computer Accounts

Me2256 will be open from 8 am to 6 pm Monday to Friday

After hours: Door Access
Door access to the lab is controlled by a campus card reader. You must login to Carleton Central to generate your own 4 digit door access pin code.

- Swipe your campus card in the reader
- Enter the 4 digit PIN
- Press the # key
- Open the door



Access to Room 2256ME and Computer Accounts

Computer Login:

Your username is the first part of your cmail address.

Your initial password is your student number followed by .Pass, e.g.

BillSmith
100394823.Pass

The first time you login to a computer in 2256ME you will be asked to change your password.

Access to Room 2256ME and Computer Accounts

- **Computer file storage and submitting Lab Assignment files:**
  You will have a personal network H: drive to store up to 60mb of files. Only you can access files in your H: drive.

Computer Lab 5010MC

Computer login:

- username: student
- password: (none, leave blank)
- Log on to: ODENG2 (default domain)

Any user files created are temporary and are automatically deleted at login and logoff.

Access to Rooms and Computer Accounts

- If you have difficulties – first ask your TA

If the TA cannot help, then ask:

  - Neil McFadyen, Supervisor of Computer Operations
    - Room 3154ME, Tel: 5636, nmcfadye@mae.carleton.ca
  - Bruce Johnston, Software and Network Specialist
    - Room 3170ME, Tel: 3555, bjohnsto@mae.carleton.ca

Lecture & Lab Behavior

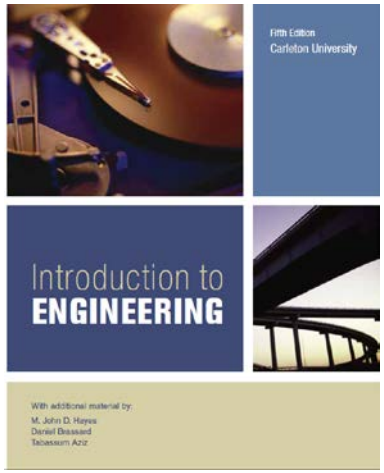
- No food or drinks in Labs
  - If you are caught, you will loose lab privileges
  - Strictly Enforced
- No cell phones
- Do not disrupt
- Respect Fellow Students
- No video/audio recording of lectures without permission

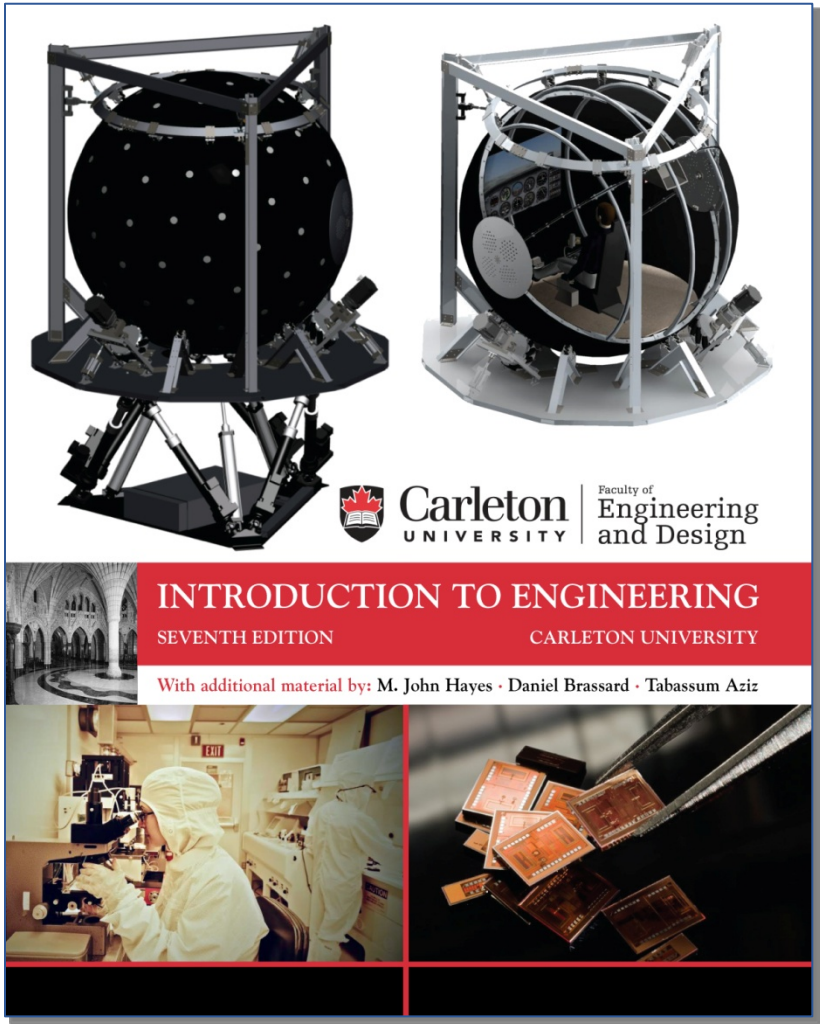
Academic Offences

- Disrupting a class or period of Instruction
  - It is a violation of the standards of academic integrity for students registered in class to disrupt the class or other period of instruction with any action or behaviour reasonably judged by the instructor, lab assistant or tutorial assistant to be detrimental to the class.

Textbook

- Required Text
  - Introduction to Engineering, 7th edition (Bookstore)
    - 5th and 6th editions almost the same
    - Some errors not corrected





ISBN# 1256362719

Course Evaluation

(from Course Outline)

- ECOR 1010 Introduction to Engineering

– Laboratories	(best 7 of 9)	15%
– Design Project	(Reverse Engineering)	10%
– WorkSmart Campus	(Online)	5%
– Midterm Exam		25%
– Final Exam		45%
		100%

Bonus (the other two labs) 1-2%

➢ For a passing grade – you must complete all of the above course elements

Laboratories

- Laboratory assignments available on cuLearn
- Each laboratory is worth about 2% of your final mark for the course
- **Must complete 7 of 9 Labs to Pass Course**
  - Fewer than 7 means a “FND” grade
  - More than 7, take best 7 marks
  - If you get ≥ 5/10 on 8 labs, get a bonus 1 %
  - If you get ≥ 5/10 on 9, get an additional 1 %

- ***YOU*** should do the labs well:
  - Compared with mid-term & final exams, these are easy marks.
  - **More importantly, they are an effective way to learn course material.**

Laboratories: Submission Procedure

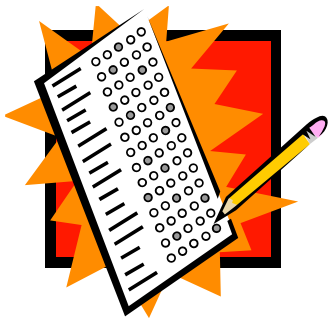
- Laboratories assigned one week are due within the first 30 minutes of the next laboratory period or they will be considered late
- Late labs will not be accepted
- Labs must be written using the template on cuLearn
- Labs are to be electronically uploaded onto cuLearn

Exceptions
Laboratories: Holidays

- No labs on:
  - Thanksgiving: Monday, October 13, 2014
    - Lab Sections on Monday October 13 shall submit Lab 4 on Tuesday Oct. 13 by 16:30.

ECOR 1010 Laboratories start with **Lab Zero** next week

- Go to cuLearn -> Lab Zero and Download "SAFE Personal Information Questionnaire"
  - fill it in,
  - bring it to Lab Zero
- There are no marks associated with Lab Zero
  - this is an orientation lab



Mid-Term Exam

- Mid-Term Exam: *Thursday, 9 October 2014*
  - In class
  - 1 hour
  - ≈ 30 multiple choice questions
  - Covers material in Lectures 1–9 & TSE 1-4
  - **To pass this course you MUST write the mid-term exam**
    - ***DO NOT BE LATE***
    - ***DO NOT FORGET***
    - ***BE PREPARED !***

ECOR 1010 Design Project

Reverse Engineering and Redesign

Fall 2014

Introduction

- Reverse engineering is the process of taking an **existing product**, **measuring** and **evaluating** it, and creating a CAD database to **reproduce it**

- Redesign is modifying an existing design

- While this project is open-ended and limited only by your imagination, your grade will be based on reasonable fulfillment of the requirements

- You are encouraged to strive for excellence, but keep the notion of diminishing returns in mind

Introduction

- Diminishing returns: meaning, you will receive full marks if your report is excellent; but you will also receive full marks if your report is “super-fantastic-really-really-excellent”

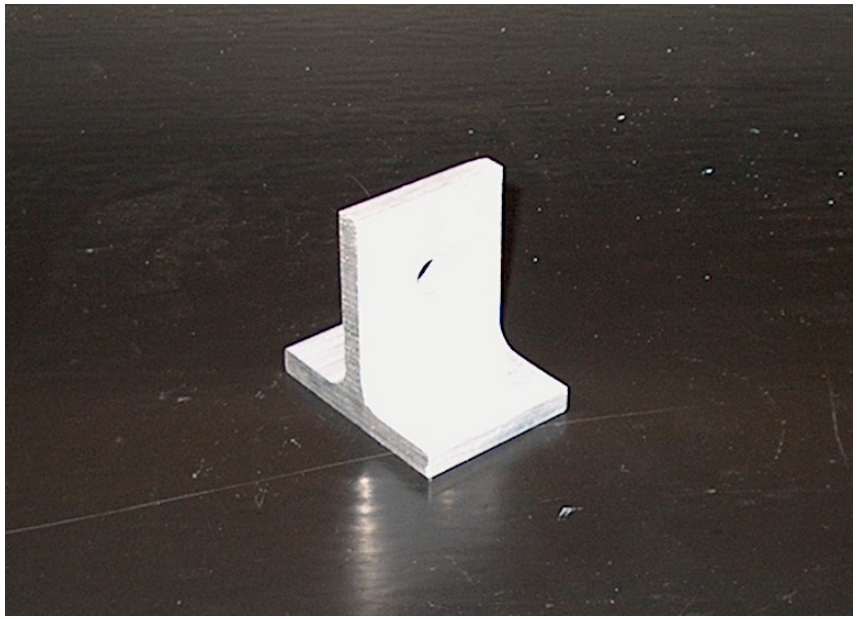
- The extra effort, after a critical level of excellence, will not translate into extra grades

Project Groups

- You must find two partners to form a group of THREE
- All group members MUST be in the SAME LABORATORY SECTION
- Tell your TA who is in your group, and you will be assigned a group number that will start with your Lab Section number
- For example, A2-2 is Group 2 in Section A2

Project Requirements

- Find a one-piece, simple object that you can hold in your hand
- Reverse engineer and redesign this piece
- The piece must have some simple features such as a hole, flange, boss, etc.
- Simple solids (cube, rectangle, etc) are not acceptable
- The part can be anything: a screwdriver, a shelf bracket, a simple part found at a hardware store



Project Requirements

1. Determine (and indicate in your report) the **purpose** of the part. What is it called?
2. **Measure** all of the important dimensions;
3. Determine the **material** the part is made from;
4. Describe the **manufacturing process** required to go from raw material to finished part;
5. Identify one **failure mode** for your part;
6. Describe the **value and benefit** of your redesign in approximately 200 words, considering creativity, usefulness, part integrity, and aesthetics;
7. Using **IntelliCAD**, generate a working drawing of the part, including all relevant dimensions;
8. Using **CREO (Pro/ENGINEER)** generate a rendered solid model of the part to include in the Design Report, and a scaled model converted to STL* file format;
9. Submit the STL file for printing on one of two **3D printers**.

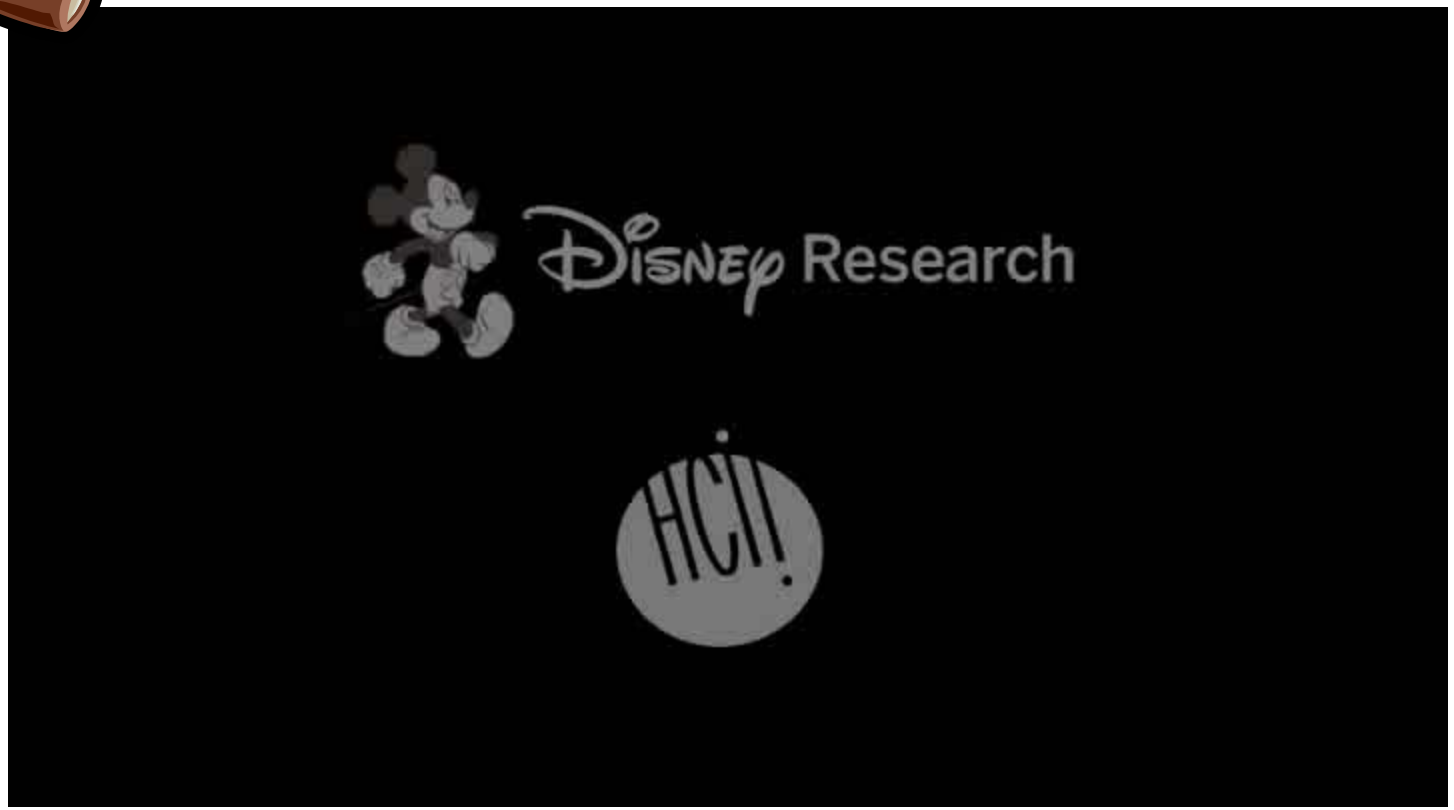
* STL = STereoLithography

3D Print Requirements

- Volume limits:
  - Dimensions: 1 in^3 maximum material volume; Minimum thickness is 0.0625 in ($1/16^{th}$ in)

Visit to 3D Print Lab, 2230ME

- Week of October 13 during labs
  - Oct 13 is a holiday, so those with labs on these days will visit the following Monday


Disney Research
HCII

3D Print Requirements

- Using Pro/E, generate an STL file*
  - In this solid model, the part will have to be scaled to conform to print volume limits
- You must submit your STL file according to instructions to be specified by Mr. Stephan Biljan (room 2230ME) in advance of the deadline of:
  - 16:30 Friday October 24, 2014

- **IMPORTANT:** Make sure that your project group number (e.g. B2-2) has been included as a text protrusion on any convenient, but visible surface on your part (see 'To create text in sketcher' in the CREO Pro/E help page)

* STL = STereoLithography

Report Requirements

- A formal engineering report is required
- You must include a title page and table of contents, but the remaining sections in the report can be arranged, included, or excluded as you see fit
- MAXIMUM LENGTH: 7 pages; Any additional pages will simply be ignored
  - The 7 pages INCLUDES the **title page** and **table of contents**
  - The **working drawing** (IntelliCAD), including title block, should be sized to occupy a full page
  - The rendered **solid model** (Pro/E) should be sized to occupy a full page
  - That leaves 2 pages for **text**

Report Requirements

- Hardcopy ONLY will be accepted
- Must be submitted through the ECOR 1010 slot in the **orange** cabinet outside the Mechanical and Aerospace Engineering office (3135ME) before:
  - 16:30 November 28, 2014
- It is to be stapled in the upper left corner
- No other binding is to be used
- Reports in envelopes will be discarded
- Your name, student number, group number, and date are to be inserted on the title page
- **Late reports will NOT be accepted for grading**

Project Deliverable Deadlines

- Project: Reverse Engineering
  - Assigned today
  - All deliverables are COMPULSORY
  - Deliverable Deadlines (Drop-Dead Dates)
    - STL files: 16:30 Friday, October 24, 2014
    - Report: 16:30 Friday, November 28, 2014 (**orange** cabinet ECOR 1010 slot outside room 3135ME)
- Late project deliverables will not be accepted
- Failure to complete and submit the Project will result in a course grade of 'FND'

Read, Read, Read

- Read the Project description!
- You will find it on cuLearn

WorkSmart Campus

Assigned today

WorkSmart Campus

- Health and Safety
- You must:
  - Access and study on-line materials
  - Take on-line tests
    - Will need to score 100% on short quizzes to gain access to subsequent modules (total of 4)
    - "Final exam" of 4 sets of 25 questions
    - Your grade on the final exam will determine your grade for the WorkSmart Campus portion of ECOR 1010
- Approximately 4 hours to complete
  - 5% of ECOR 1010 grade
  - When complete: upload transcript to cuLearn BEFORE 16:30 on December 5, 2014
  - Late Submissions will **NOT** be accepted ⇨ course grade of FND

WorkSmart Campus

www.worksmartcampus.ca

Enroll with Campus ID: MEVT2747

Email: use your cmail account

Follow online instructions.

!! Deadlines !!

Late Lab Assignments, Design Project, WorkSmart Certificate will **NOT** be accepted

- Lab Assignments are due 30 minutes after start of next Lab Session (upload electronic copy to cuLearn)
- Design Project
  - STL file due 16:30 Friday October 24, 2014
  - Report (hardcopy in 'orange cabinet') due 16:30 November 28, 2014
- WorkSmart Campus Certificate shall be uploaded to cuLearn by 16:30 Friday, December 5, 2014

The Orange Cabinet

How To Be Successful ?
It Takes Work and Organization !

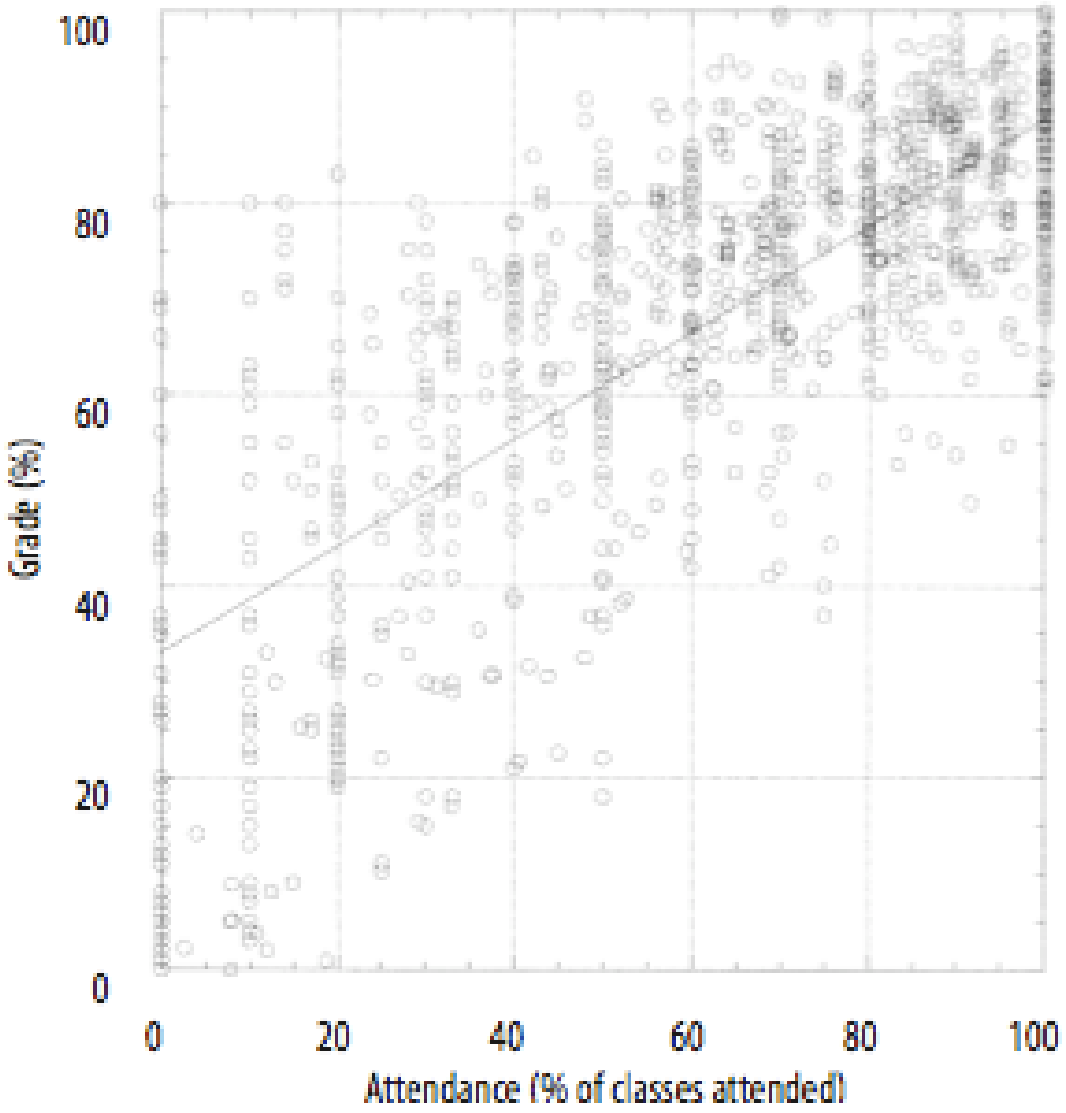
- Attend All Lectures
- Attend All Laboratories
- ***YOU*** Keep up to date with reading assignments
- Hand in Lab Assignments On-time
- ***YOU*** Do Lab Assignments
- Hand in Design Project on-time
- ***YOU*** do & hand in WorkSmart Campus on-time
- Prepare for, & write the Mid-Term & Final Exam

University is different from high school

- Less time in class and more homework, which places greater responsibility on you
- Larger class sizes, which mean less personal attention—and often loss of focus
- Different attendance expectations, which shifts accountability from the teacher to you

Figure 1.

The relation of class attendance and course grades in our Introductory Science classes. The size of this sample exceeded 1400. The equation for these data is $y = 33.1 + 0.55x$, and the correlation coefficient (r) = 0.78.



Showing Up: The Importance of Class Attendance for Academic Success in Introductory Science Courses

Randy Moore, Murray Jensen, Jay Hatch, Irene Duranczyk, Susan Staats, and Laura Koch General College, University of Minnesota, Minneapolis, MN
(American Biology Teacher, v65 n5 p325-29 May 2003)

If You Have Questions / Difficulties ?

- Consult University Calendar
- Ask Teaching Assistant
- Visit Student Academic Success Centre
- Contact Paul Menton Centre for students with disabilities
- Contact Professor
- Contact Program Undergraduate Assoc. Chair

"Professors and TAs want you to succeed. If you need help, ask for it" Eric Duivesteyn, B.Eng. 2011

Advice from the classes of 2010&2011: If you could give one piece of advice to a first-year engineering student, what would it be?

- "Stop partying, start thinking, engineering is hard" Alex Pharland, BEng 2010

- "If you get into the habit of going to class & doing all your work now it's easier to time manage in the following years." Sylvie Tremblay, BEng 2010

- "try to create good study habits as early on in your university career as possible, you will have to figure it out sooner or later, might as well be sooner." Michael Michalak, BEng 2010

- “Don’t copy assignments; won’t learn anything” Marc Bacler, BEng 2010

- “Remember that in 4 years you will be expected to actually know all the subject matter you have covered. So don’t just focus on getting the assignments done, or studying enough to pass a test, make sure you actually learn the material and keep it” Matthew Parker, BEng 2010

- “Engineering is a pyramid of knowledge. By the end, all your subjects merge into one big subject: Engineering. If you don’t have a solid foundation for your pyramid, life will only get harder. So, please, master all the skills in the early years and you’ll be laughing by the end.” Alex J. Kotler, BEng 2011

- “Hard work, diligence and team work all equal excellence in engineering in both the classroom and in the workplace.” Rich Chapple, BEng 2011

- “Stick with it! No one says its easy but it’s definitely worth it!” Alexandre Adcock, BEng 2010

- “Manage your time properly” Yogendra Sawh,BEng 2010

- “Stay on top of your coursework and topics. If done the workload and theories are very manageable, otherwise allowing them to pile up = stress!! Enjoy.”
  Adrian Barber, BEng 2010

- “… if you stay disciplined you’ll learn a lot of cool things and the rewards are huge.” Damiano Alloggia, BEng 2010

Finally …

- "I would advise 1st year students that not every class can be learnt the day before the final exam. They need the time throughout the whole term. And also, that stressing over everything isn't going to help at all."
  Anali Christina Stewart, BEng 2011

Academic Integrity

It is your responsibility to know the rules regarding cheating.
This means we do not accept “I didn’t know” as an excuse!

Academic Offences

- Cheating: "Unauthorized Cooperation or Collaboration"
  - Students shall not cooperate or collaborate in the completion of an academic assignment, in whole or in part, when the instructor has indicated that the assignment is to be completed on an individual basis.
  - ALL LABS ARE TO BE COMPLETED ON AN INDIVIDUAL BASIS.
- Plagiarism:
  - Plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own.

Academic Offences

- Penalties for Cheating &/or Plagiarism:
  - Expelled
  - Suspended
  - Reprimanded
  - placed on probation
  - grade penalty, including grade of F.

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Examples of Academic Fraud

- Getting access to a test before it is administered
- Resubmitting an old assignment for a different class or submitting someone else's assignment from any class
- Impersonating someone else on an exam
- **Unauthorized Collaboration -** Working together with friends or in groups in ways not authorized by the professor
  - **Expect to do your own work. Unless allowed to submit a group work/report**
  - **Avoid looking at (copying) each other's work when doing your assignment/lab report/essay**
  - **Discuss, but do not show your work to others (unless specified not to discuss by your instructor)**

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Examples of Academic Fraud

- Submitting false documentation such as a forged medical note
- Submitting sections of someone else's computer code as your own
  - **Avoid showing your code to others**
  - **Do not leave your computer (login)/work unattended**
  - **Dispose of your (old) work properly**
- Falsifying facts on assignments, including lab data
- Copying data or text from old lab reports

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Examples of Academic Fraud

- Not citing information
- Trying to read someone else's answers on an exam
- Helping someone commit academic fraud is the same as committing it yourself
  - **Give/lend assignment, essay or lab report to someone (avoid asking someone to hand in your assignment)**
  - **Allow someone to read your exam (avoid sitting close to friends)**

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Who is Affected by Academic Fraud?

- **You**
  - Possible Sanctions include:
    - Receiving a grade of zero on an assignment
    - Educational Assignments
    - Grade point reduction
    - Failing the class
    - Having Additional degree requirements
    - Suspension
    - Expulsion
  - Difficulties with exams and future courses
  - Future employment

  We expect that you know the rules from day one

- **Others**
  - The people who help fund your education: they expect you to know engineering.

How to Avoid Academic Fraud

- **Difficulties with Writing**
  - Students who do not budget enough time for assignments and lab reports and who are struggling with writing are tempted to copy from old assignments and reports
  - ESL students may have an especially difficult time writing under pressure
  - Remember, a poorly written lab report that earns low marks is better than a zero for the lab report
    (or worse: possible failure, suspension and expulsion)

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How to Avoid Academic Fraud

- **Time Management**

  Not having enough time is the most common excuse for cheating

  - Give yourself enough time to finish your assignment
  - Take advantage of the workshops offered by LSS (4th Floor Library)

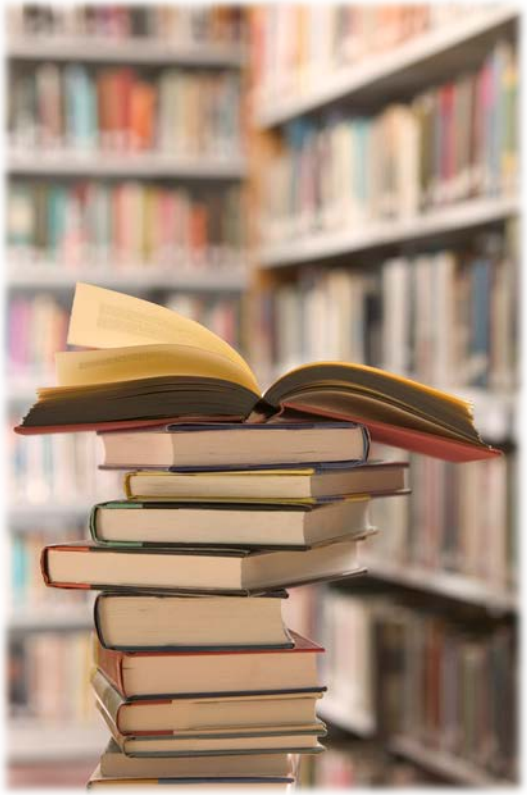
- **Ask for Help**

  When in doubt ask for help:

  - If you think something might be plagiarism ask your instructor before submitting the assignment
  - If you are unclear about how much group work is permitted then ask your instructor
  - Download "How to Cite" Guides from the Library's website or from individual departments' websites

How to Avoid Academic Fraud

- **Use Proper Research Methods**
  - Take detailed notes while researching
  - Ensure that you cite all material that is not yours, even when you are paraphrasing, no matter how small the phrase
  - Ensure that you use quotation marks to indicate when you use words that are not your own



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Conclusion

Carleton has an academic integrity policy. It is enforced and you are expect to maintain academic honesty at all times

For more information on academic integrity or to read the Academic Integrity Policy visit the Office of Students website:
http://www2.carleton.ca/studentaffairs/academic-integrity/

Reading Assignment

- Chapters 1 to 3
- Section 14 of Undergraduate Calendar on Academic Integrity
- Read Chapter 3 in the text several times: “Advice on Studying, Exams and Learning”
  - Read Chapter 3 before you *need* Chapter 3

Technology, Society & Environment

Friday lectures

What Will You Do to Help Society ?

Why Technology, Society & Environment ?

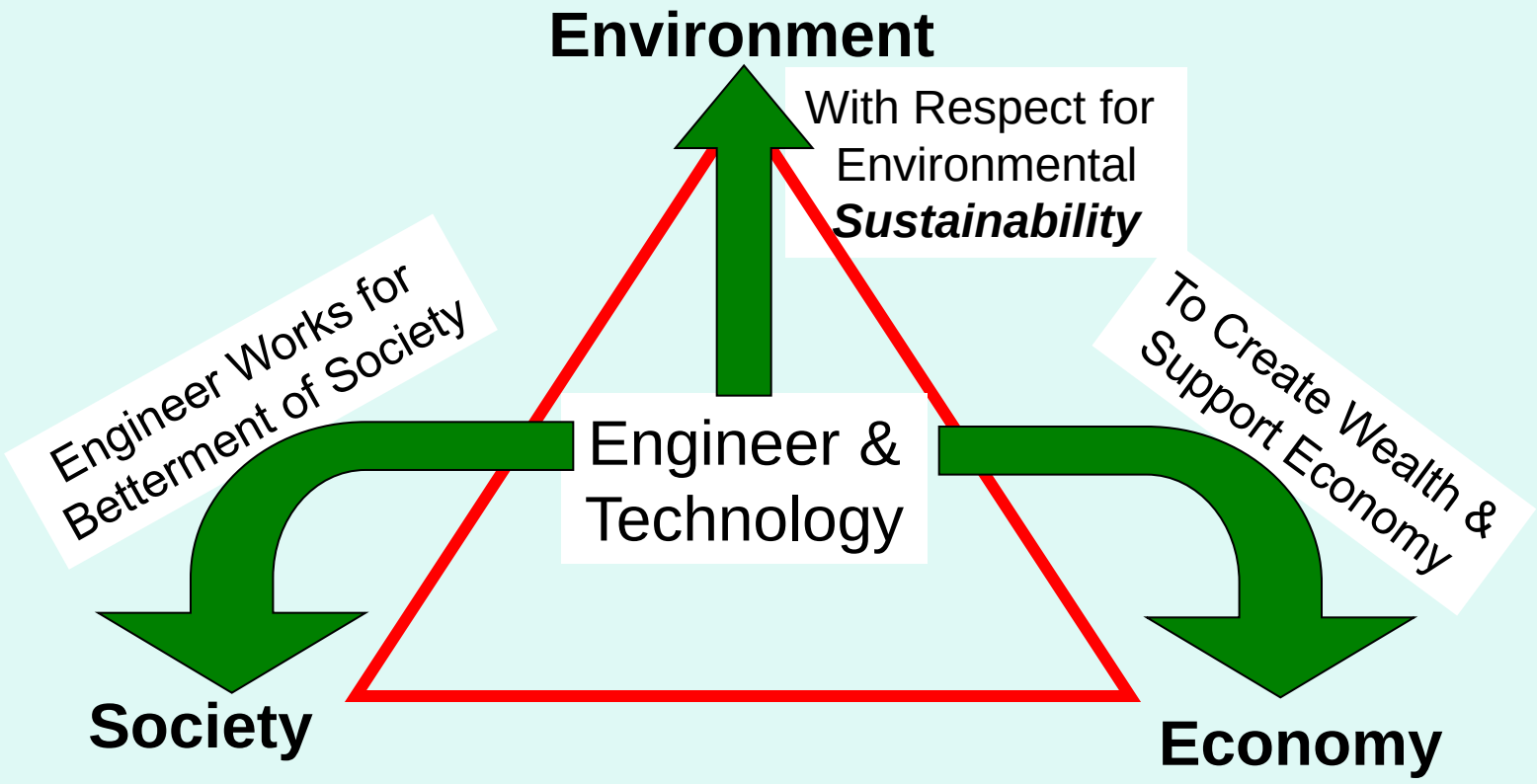
Engineer's Attributes:		**Curriculum Component:**
• First rate ***technical*** knowledge	⟷	engineering, science & math
• Create what has not been	⟷	innovation & design skills
• Not only do things right, but know what to do	⟷	critical thinking & problem solving
• Connect ethical, political, international ***environmental***, economic factors	⟷	humanities / complementary studies

Allows Engineers To:

- Put ***technical*** knowledge to work for ***society***
- Catalyze private sector to create wealth

Aim of Engineering Profession

Application of Engineer's Technical Knowledge

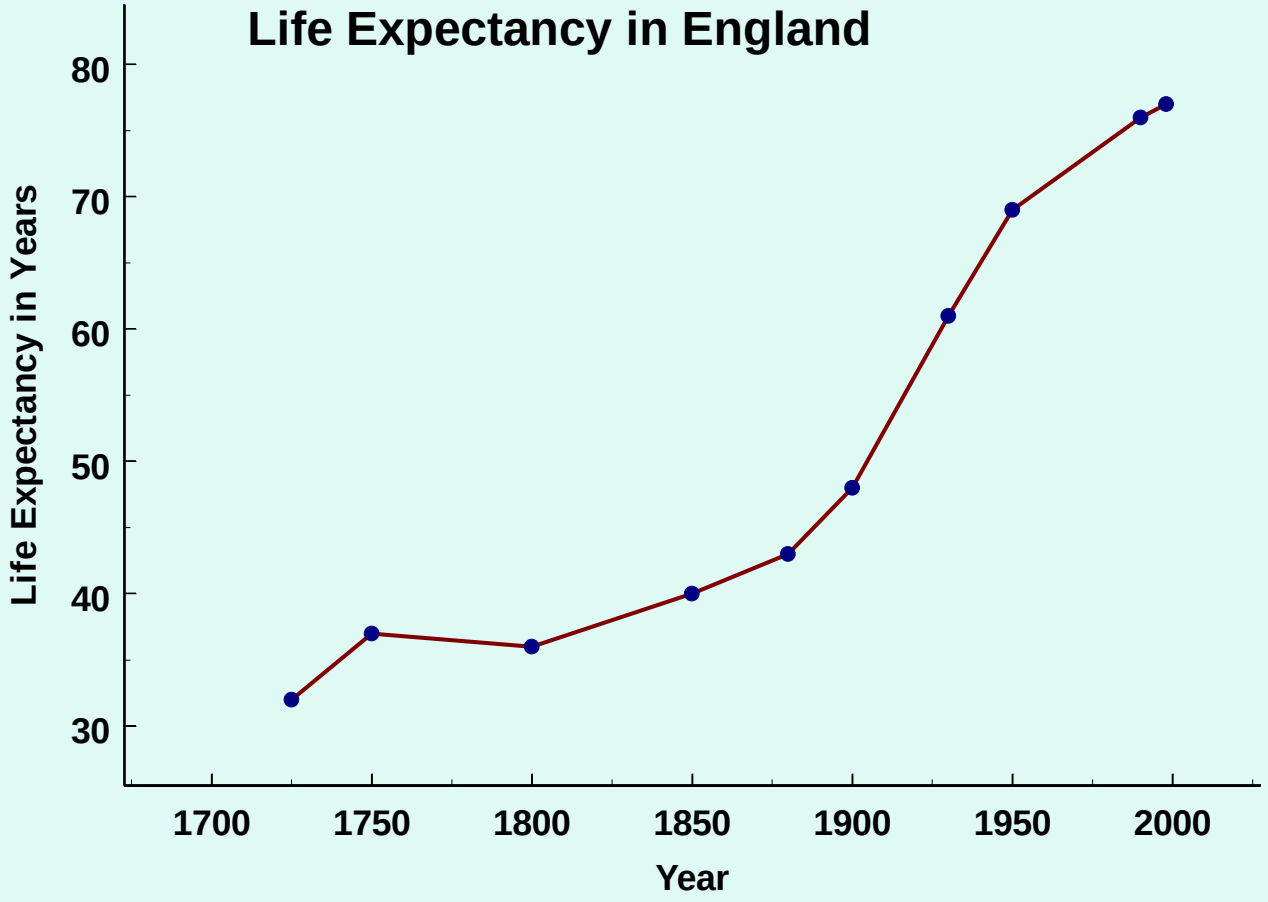


Interface between Society-Economy-Environment

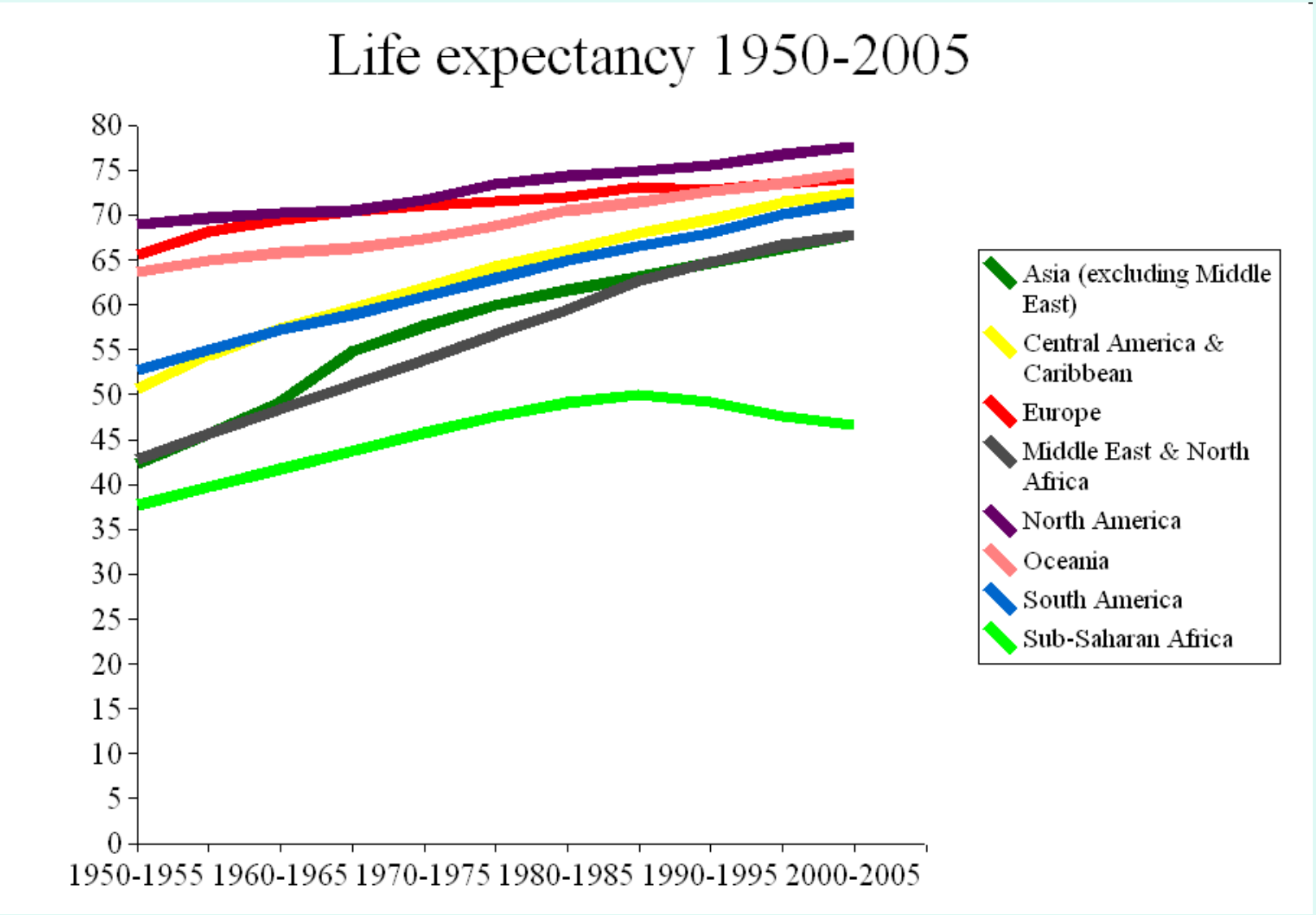
Difficult task to balance all three

Requires Substantial '*Engineering Skill & Judgement*'

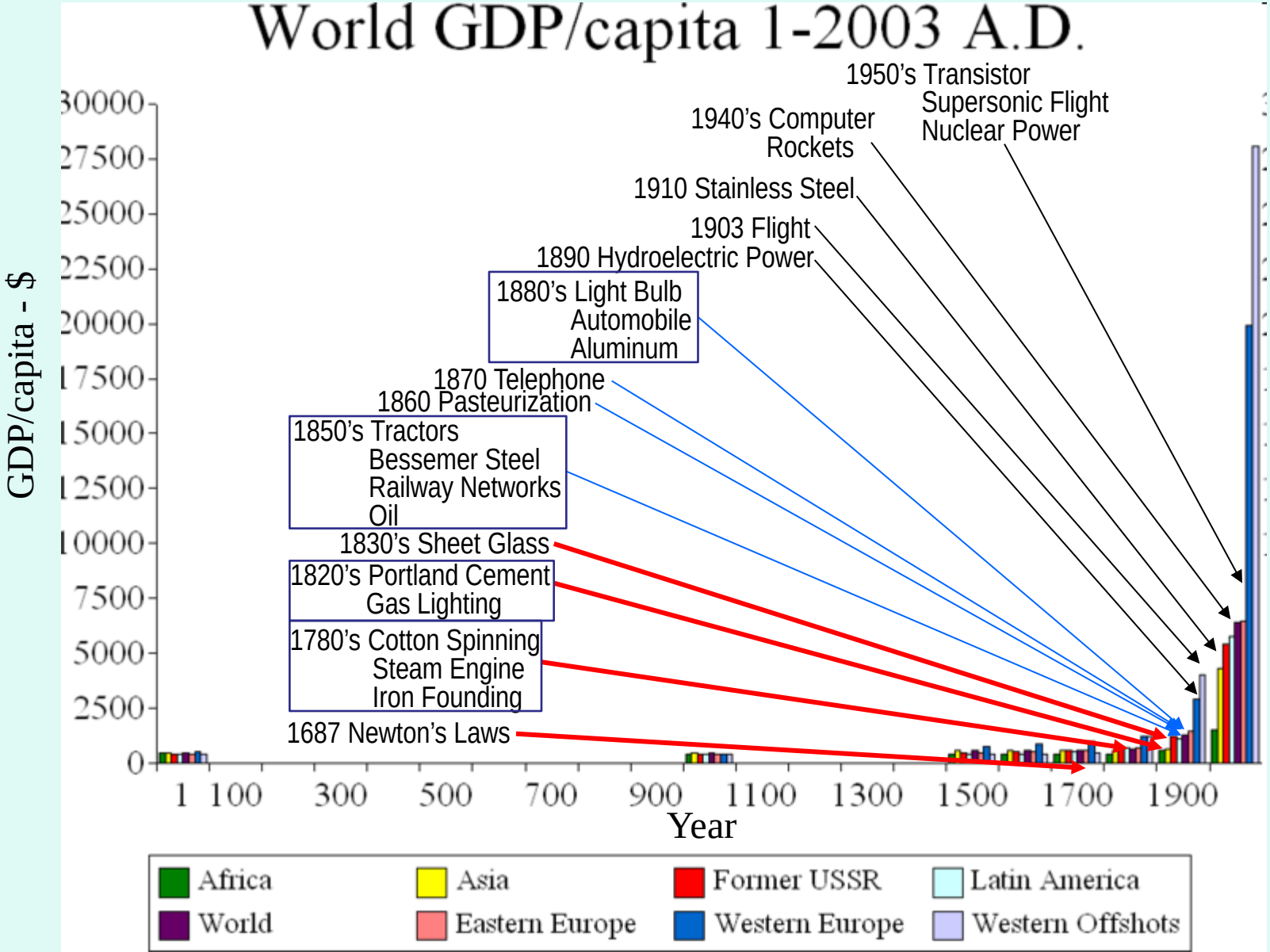
Are Engineers & Technology Making a Difference ? - 1



Are Engineers & Technology Making a Difference ? - 2



Are Engineers & Technology Making a Difference ? - 3



How Are You Going to Make a Difference ?

How Do You Plan to Contribute to Aims of Engineering Profession ?

- Put ***technical*** knowledge to work for ***society***
- Catalyze ***economy*** to create wealth for the benefit of ***society***

- What is your plan ?
- No plan yet ? … That's Okay … It's only the first few day of 1st Year !!
- Tomorrow we start …