ENGG*1100 Engineering & Design I
Fall 2013

UNIVERSITY of GUELPH

School of Engineering

(September 5, 2013 Version -- 1st Class Meeting)

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1 INSTRUCTIONAL SUPPORT

1.1 Instructor

Instructor: Warren Stiver, Ph.D., P.Eng.
Office: THRN 1343, ext. 54862
Email: wstiver@uoguelph.ca
Office hours: By appointment

1.2 Technician

Technician: Alex Galvez
Office: THRN 2363, ext. 53663
Email: agalvez@uoguelph.ca

1.3 Teaching Assistants

GTA	Email	Office Hours
Adam Moore	Amoore03@uoguelph.ca	None
Adam Shomer	ashomer@	None
Ammar Abu Leil	aabuleil@	None
Andrew Bisso	abisso@	None
Carolyn Chan	Cchan10@	None
Cody Thompson	cthompso@	None
Colin Weaver	cweaver@	None
Mohammadhossein Hajiyan	mhajiyan@	None
Sondus Jamal	sjamal@	None

2 LEARNING RESOURCES

2.1 Course Website

Course material, news, announcements will be regularly posted to the ENGG*1100 Courselink site. You are responsible for checking the site regularly.

2.2 Required Resources

1. Andrews G.C., Aplevich J.D., MacGregor C., Fraser R.A., *Introduction to Professional Engineering in Canada*, 3rd Edition, Prentice Hall, 2009
2. Clicker – purchase at Book Store.
3. Log Book and Sketch pad

2.3 Recommended Resources

NONE.

2.4 Additional Resources

Lecture Information: All the lecture notes are posted on the web page (week #1-#12). These notes are skeleton in character. Do not consider these sufficient to gain the required knowledge, skills or thinking.

Lab Information: The handouts for all the lab sessions are posted on the Courselink site. All types of resources regarding tutorials, links to web pages can be found in this section.

Assignments & Project Information: This will be posted on the Courselink site.

Quizzes & Exams: This is my first year teaching ENGG*1100. I am not able to post old versions of these items. If you find old versions from other instructors please recognize that instructor styles differ. Do not expect many multiple choice questions on the final exam.

Miscellaneous Information: Other information related to the course will be posted on Courselink site.

2.5 Communication & Email Policy:

Please use lectures and lab help sessions as your main opportunity to ask questions about the course. Major announcements will be posted to the Courselink site. **It is your responsibility to check the course website regularly.** As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its student.

3 ASSESSMENT

3.1 Dates and Distribution

Item	Grade	Date(s)
Final Exam* (Individual)	20% or 25%	Wednesday December 11th
In Lecture Questions* (Individual)	5% or 0%	Thursdays -- Sept 19 to Nov 21 1 or more Q's per Thursday using i-Clickers
In Lab Assignments for Design and Visual process development (Mix)	15%	Pass / Fail for each In 8-10 labs Majority assigned and completed in lab
Design Project (Team) Performance Documentation	35% 20% 15%	 In Lab Nov 19-25th DUE 11:00 pm Nov 28th
Visual Communication Innovation Dwg (Individual) 3 In Lab Quizzes (Individual) 3D Building (Team)	25% 10% 10% 5%	 DUE End of Computer Lab Week 10 Weeks 4, 6 and 8 (Best 2 of 3) In Lab Nov 19-25th

* the weighting of these two items will be whichever works to your individual advantage.

3.2 Course Grading Policies

Missed Assessments: If you are unable to meet an in-course requirement due to medical, psychological, or compassionate reasons, please email the course instructor. See the undergraduate calendar for information on regulations and procedures for Academic Consideration: http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml

Accommodation of Religious Obligations: If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor at the start of the semester to make alternate arrangements. See the undergraduate calendar for information on regulations and procedures for Academic Accommodation of Religious Obligations: http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-accomrelig.shtml

Passing Grade: The passing grade for this course is 50%.

Lab Work: You are expected to attend and participate in all laboratories. You may only attend your scheduled section.

Missed items: There will be no makeup for missed individual in-lecture questions, in-lab assignments or in-lab quizzes. If you are granted academic consideration (medical or compassionate) or religious accommodation, the weight of the missed item will be added to the corresponding parallel items.

Late: Late submissions will not be accepted.

Team Work: If there is some observation or evidence that you have not been an approximately equal contributor to your team's work then you will be asked to provide evidence of your individual efforts, contributions and results. A logbook is a required means to help demonstrate your contributions. Low contributions may lead to a lower grade or academic misconduct policies being applied.

4 AIMS, OBJECTIVES & GRADUATE ATTRIBUTES

4.1 Calendar Description

Introduction to engineering and design by means of selected problems. Students integrate basic science, mathematics, and complementary studies to develop and communicate engineering solutions to specific needs using graphical, oral, and written means. Application of computer-aided drafting, spreadsheets, and other tools to simple engineering design problems. The practice of professional engineering and the role of ethics in engineering.

Restriction: Registration in the B.Eng. Program

4.2 Course Aims

The aim of the course is an introduction to engineering design and to Guelph's sequence of design courses, an introduction to expectations of the profession in spirit and specifics, to establish a collaborative and team philosophy around learning and engineering, and to stimulate enthusiasm through the successful completion of a design challenge. Finally to initiate the development of independent learning skills that are essential for success in engineering education and engineering careers.

4.3 Learning Objectives

At the successful completion of this course, the student will have demonstrated the ability to:

1. *Describe a systematic engineering design process*
2. *Apply a systematic engineering design process to simple engineering problem(s)*
3. *Produce engineering design documentation in written, oral and graphical (visual) forms with an emphasis on the graphical*
    a. *Prepare engineering drawings of design ideas and across engineering disciplines*
    b. *Explain engineering drawings across engineering disciplines*
4. *Construct solutions with the aid of engineering tools (e.g. CAD, spreadsheet, programming and hand tools)*
5. *Describe overall professional engineering responsibilities with particular emphasis in terms of ethics and safety*
6. *Analyze existing and historical engineering designs*
7. *Practice individual and team work necessary for learning and project completion.*

4.4 Graduate Attributes

Successfully completing this course will contribute to the following CEAB Graduate Attributes:

Graduate Attribute	Learning Objectives	Assessment
1. Knowledge Base for Engineering		
2. Problem Analysis		
3. Investigation		
4. Design	1, 2, 3	Exam, In Lab Assignments, Design Project
5. Use of Engineering Tools	4	Exam, In Lab Assignments, Design Project,

		Visual Communication
6. Communication	3	Exam, In Lab Assignments, Design Project Documentation, Visual Communication
7. Individual and Teamwork	7	In Lab Assignments, Design Project, Visual Communication
8. Professionalism	5, 6	Exam, In Lecture Questions
9. Impact of Engineering on Society and the Environment	5, 6	Exam, In Lecture Questions, Design Documentation
10. Ethics and Equity	5, 6	Exam, In Lecture Questions
11. Business & Project Management		
12. Life-Long Learning		

4.5 Instructor's Role and Responsibility to Students

The instructor's role is to develop and deliver course material in ways that facilitate learning for a variety of students. Selected lecture notes will be made available to students on Courselink/D2L but these are not intended to be stand-alone course notes. During lectures, the instructor will expand and explain the content of notes and provide example problems that supplement posted notes. Scheduled classes will be the principal venue to provide information and feedback for tests and project.

4.6 Students' Learning Responsibilities

Students are expected to take advantage of the learning opportunities provided during lectures and tutorials. Students, especially those having difficulty with the course content, should also make use of other resources recommended by the instructor. Students who do (or may) fall behind due to illness, work, or extra-curricular activities are advised to keep the instructor informed. This will allow the instructor to recommend extra resources in a timely manner and/or provide consideration if appropriate.

4.7 Relationships with other Courses & Labs

Previous Courses:

Hopefully all of your previous education proves valuable.

Con-Current Courses:

ENGG*1210: Design project will rely on Physics (high school) and mechanics.

CIS*1500: Programming the Arduino Microcontroller will complement your programming course.

HIST*1250: Some of the engineering cases will complement an historical look at the technology and society.

Follow-on Courses:

ENGG*2100, 3100, 41x0: Engineering & Design II, III & IV

Each engineering program has at least 3 additional design courses.

ENGG*XXXX: A very large fraction of your program will encourage and/or rely on collaborative, team learning approaches.

5 TEACHING AND LEARNING ACTIVITIES

5.1 Timetable

Lectures (All sections):

Tuesday	8:30 – 9:20 am	ROZH 101
Thursday	8:30 – 9:20 am	ROZH 101

Labs (You may only attend your scheduled lab sections):

Section	Design Lab (THRN 1435)	Computer Lab (THRN 2313)
0101	Thursday 9:30 – 11:20	Tuesday 9:30 – 11:20
0102	Tuesday 9:30 – 11:20	Thursday 9:30 – 11:20
0103	Friday 9:30 – 11:20	Wednesday 9:30 – 11:20
0104	Wednesday 9:30 – 11:20	Friday 9:30 – 11:20
0105	Friday 12:30 – 2:20	Wednesday 12:30 – 2:20
0106	Wednesday 12:30 – 2:20	Friday 12:30 – 2:20
0107	Monday 12:30 – 2:20	Monday 9:30 – 11:20
0108	Monday 9:30 – 11:20	Monday 12:30 – 2:20
0109	Monday 2:30 – 4:20	Friday 2:30 – 4:20
0110	Friday 2:30 – 4:20	Monday 2:30 – 4:20

The Design and Computer labs will start on Monday September 9th and end on Monday November 25th resulting in 11 sessions for each section in each lab. There are no labs on Thursday September 5th, Friday September 6th, Monday October 14th (Thanksgiving) or Tuesday to Thursday November 26-28th.

The course carries a 0.75 credit weight. A typical "B" student is expected to require approximately 15 hours per week to receive a "B" grade in a course with this weighting. This 15 hours includes the 6 hours per week of scheduled contact hours (2 hours in lecture and 4 hours in labs).

5.2 Lecture Schedule (approximate, subject to shift at the discretion of the instructor)

Lectures	Lecture Topics	References	Learning Objectives
1	Welcome plus	Course Outline	
2-9	Engineering Design Process	Chapter 15 +Courselink	1, 2, 3
10-14	Professional Engineering	Ch 1, 2, 3, 18 +Courselink	5, 6
15-23	Engineering Cases – Design, Ethics & Safety	Ch 3, 19, 20, 21 Cases posted on Courselink	5, 6
24	Wrap-up		

5.3 Design & Computer Lab Approximate Schedule

Lab Week	Dates	Design Lab (THRN 1435)	Computer Lab (THRN 2313)
1	Sept 9 - 13	Team & Design Exercises	Introduction to Computers, AutoCad 1
2	Sept 16 -20	Sketch 1	Arduino 1, AutoCad 2 (Electrical)
3	Sept 23 - 27	Design Project Launch, Team forming, Constraints Exercise	AutoCad 3 (Architectural, Civil)
4	Sept 30 – Oct 4	Ideas Exercises	Quiz 1, AutoCad 4 (Process)
5	Oct 7 - 11	Sketch 2	Arduino 2
6	Tues Oct 15 – Mon 21	Measurement, Criteria Exercise	Quiz 2, Solid Works 1 (Mechanical)
7	Oct 22 – 28	Safety Exercise	Solid Works 2 (Mechanical)
8	Oct 29 – Nov 4	Life Cycle Exercise	Quiz 3, AutoCad 5 (Control)
9	Nov 5 – 11	Sketch 3	Spreadsheets
10	Nov 12 – 18	Testing	Drawing Support Innovation Dwg
11	Nov 19 – 25	Design Assessment, Kit Returns	Solid Works 3 – 3D Campus Building

Note: no labs on Sept 5 and 6, no lab on Oct 14 and no labs on Nov 26, 27, 28.

5.4 See 5.3

5.5 Other Important Dates

Monday, 14 October 2013: Thanksgiving holiday, no classes
Thursday, 31 October 2013: 40th class day – last day to drop one-semester courses
Thursday, 28 November 2013: last class (Monday Schedule in effect as make up for Thanksgiving)

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6 LAB SAFETY

6.1 School of Engineering Policy

Safety is critically important to the School and is the responsibility of all members of the School: faculty, staff and students. As a student in a lab course you are responsible for taking all reasonable safety precautions and following the lab safety rules specific to the lab you are working in. In addition, you are responsible for reporting all safety issues to the laboratory supervisor, GTA or faculty responsible.

6.2 ENGG*1100 Specific

The computer labs are largely limited to computer use only – this does not raise any special safety issues. A few computer labs will work with an Arduino Microcontroller, 9V batteries and small electrical motors. The computer connection to the Arduino is via the USB port. There are no significant safety issues introduced.

In the design labs, you will be using Mecanno (suitable for ages 8+), Arduino Microcontroller (suitable for teenager+ usage), wrenches, screwdrivers, wire strippers, 9V batteries and other similar small hobby, low risk tools and components.

7 ACADEMIC MISCONDUCT

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member.

7.1 Resources

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml

A tutorial on Academic Misconduct produced by the Learning Commons can be found at:
http://www.academicintegrity.uoguelph.ca/

Please also review the section on Academic Misconduct in your Engineering Program Guide.

The School of Engineering has adopted a Code of Ethics that can be found at:
http://www.uoguelph.ca/engineering/undergrad-counselling-ethics

7.2 ENGG*1100 Specifics

ENGG*1100 requires a combination of individual and teamwork to successfully complete this course. Collaborative learning will be encouraged throughout. It will be clearly stated when an assessment is to be an individual exercise, when an individual team exercise and when it is wide open for collaborative work.

Do not include your University of Guelph Student Number on your submissions.

Do not include your PEO Student Membership Program (SMP) number on your submissions (this does contradict the SOE's Code of Ethics).

Do include your first (commonly used name) and last name and do include your University CFS Login ID.

In the event that there is some reason to believe that you are not or have not fairly contributed to the work of your team then you will be required to submit your Log Book to aid judgment regarding academic misconduct.

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8 ACCESSIBILITY:

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability for a short-term disability should contact the Centre for Students with Disabilities as soon as possible For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: http://www.csd.uoguelph.ca/csd/