



School of Engineering  
**Engineering & Design III (ENGG\*3100)**

Winter 2013

**Course Outline**

**Calendar Description**

This course combines the knowledge gained in the advanced engineering and basic science courses with the design skills taught in ENGG\*1100 and ENGG\*2100 in solving open-ended problems. These problems are related to the student's major. Additional design tools are presented, including model simulation, sensitivity analysis, linear programming, knowledge-based systems and computer programming. Complementing these tools are discussions on writing and public speaking techniques, codes, safety issues, environmental assessment and professional management. These topics are taught with the consideration of available resources and cost.

*Prerequisites:* Registration in the B.Eng. program and completion of 6.00 credits of ENGG courses including [ENGG\\*2100](#)

*Restriction(s):* Students must have a minimum cumulative average of 60% or higher in ALL ENGG courses.

University of Guelph Credits: 0.75 (Nominally 15 h per week for a B student to earn a B)

CEAB Accreditation Units (AU's): 50 AU's in Engineering Design

16 AU's in Complementary Studies

**CEAB – Graduate Attributes / Learning Outcomes**

Graduate Attribute	Taught	Assessed	Graduate Attribute	Taught	Assessed
1. Knowledge Base	N	Y	7. Communication	Y	Y
2. Problem Analysis	N	N	8. Professionalism	N	N
3. Investigation	N	Y	9. Environment & Society	Y	Y
4. Design	Y	N	10. Ethics and Equity	N	N
5. Engineering Tools	N	Y	11. Business, Project Mgmt	Y	Y
6. Individual & Team Work	N	N	12. Life-long learning	N	N

**Instructors**

Ryan Clemmer  
 THRN 1337  
 rclemmer@

Bahram Gharabaghi  
 THRN 2417  
 bgharaba@

Warren Stiver  
 THRN 1343  
 wstiver@

**Graduate Teaching Assistants**

Richard Chen  
 Matthew Schreiber

Matthew Diccico  
 Gregor Scott

Gurvinder Mundi  
 Jennifer Spencer

## Meeting Times

Lectures:	ALL	Mon, Wed, Fri	12:30 - 1:30	THRN 1200
Lab Sections:	0101	Mon	8:30 – 10:30	THRN 1002, 1006, 1435
	0102	Wed	8:30 – 10:30	THRN 1002, 1006, 1435
	0103	Wed	3:30 – 5:30	THRN 1002, 1006, 1435

Attendance is expected for all lectures and for all of your assigned lab sections.

## Evaluation

Design Proposal	10%	(Due: January 25 <sup>th</sup> at 12:30; Electronic / Hard Copy)
Presentation I	10%	(Week # 5 in your labs – February 4 to 6 <sup>th</sup> )
Technical Report	25%	(Due: February 15 <sup>th</sup> at 12:30; Electronic / Hard Copy)
Presentation II	10%	(Week #10 Lectures and Labs – March 18 to 22 <sup>nd</sup> )
Final Report	45%	(Due: April 5 <sup>th</sup> at 12:30; Electronic / Hard Copy)

- Design work will be completed in teams of 4 (5 in a few cases)
- Electronic for full report including all appendices and other supporting document files; Hard copy all but appendices
- Individual grades may differ from team grades in positive and negative ways
  - Individuals not carrying their weight (quality or quantity) based on peer comments and/or instructor observations may receive a reduced grade. A severe quantity issue may lead to academic misconduct charges.
  - Individuals serving as exceptional leaders (not volume of effort but enabling their team to be much greater than the sum of its parts) based on peer comments and/or instructor observations may be awarded a bonus.
  - Individuals will be required to submit self and peer evaluation forms following their Technical and Final Reports. These forms and the observations of all instructors and GTAs during the semester will be considered in assigning an individual grade.
  - Individuals are required to keep track of their individual efforts throughout the semester – individual meeting notes, design ideas, design analysis work etc. The professors may request to see this individual information when a reduced grade is being considered.
  - Indications of individual and team problems may lead to interviews during the semester.
- Late Penalties (in the absence of approved medical or compassionate grounds)
  - 10% reduction for submissions between 12:30 pm and 4:30 pm on the Friday
  - 35% reduction for submissions by 12:30 pm on Saturday
  - 60% reduction for submissions by 12:30 pm on Sunday
  - 100% reduction for submissions after 12:30 pm on Monday

## Resources

Courselink site will be the primary means to distribute material.  
There is no required textbook.

## Design Project

Design project expectations, project list and descriptions, deliverable descriptions and evaluation rubrics will be posted on Courselink.

## Lecture Schedule (tentative)

Wk	Lecture	Major Milestones
1	Course Outline & Initial Project overview	
	Shadow House Design Intro & Proposal Writing	
	Industry Projects - <b>Industry Guests</b> *	
2	Industry Projects - <b>Industry Guests</b> *	
	Exploring Space, opportunities,	
	Identifying Scope, constraints, criteria	
3	Information Gathering - Peggy Pritchard – <b>Guest</b> *	
	Idea generation start, State-of-the-art piece	
	Deliverables (reports and presentations)	<b>Design Proposal is Due (10%)</b>
4	Writing Skills – Margaret Hundleby – <b>Guest</b> *	
	Initial Screening analysis	
	Initial Screening analysis	
5	Decisions	<b>Presentation I in your labs (10%)</b>
	Simulation	
	Simulation	
6	Social / Safety	
	Economic / Cost Estimation	
	Environmental	<b>Technical Report is Due (25%)</b>
7	Social / Safety	
	Economic / Cost Estimation	
	Environmental	
8	Social / Safety	
	Economic / Cost Estimation	
	Environmental	
9	Social / Safety	
	Risks / Uncertainties	
	Recommendations	
10	Presentations	<b>Presentation II in your labs &amp; lectures (10%)</b>
	Presentations	
	Presentations	
11	IP - Haridoss Sarma – <b>Catalyst Centre Guest</b> *	
	IP - Haridoss Sarma – <b>Catalyst Centre Guest</b> *	
	Easter	
12	41x primer (Course evaluation)	
	Faculty Innovations – <b>Faculty Guests</b> *	
	Faculty Innovations – <b>Faculty Guests</b> *	<b>Final Report is Due (45%)</b>

## Course Policies

The regulations concerning academic misconduct as outlined in the current University of Guelph undergraduate calendar will be strictly enforced.

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Academic misconduct includes individuals in teams who take credit for work that they have not been approximately equal contributors. Individuals aiding and abetting are also committing academic misconduct.

**General University Policies** (see [www.uoguelph.ca/vpacademic/avpa/checklist/](http://www.uoguelph.ca/vpacademic/avpa/checklist/) for details):

Communication: to you as an individual will be to your <uoguelph.ca> e-mail account; e-mails to course professors should have ENGG\*3100 in the subject line

When You Cannot Meet a Course Requirement: contact a professor via e-mail or in person.

See University Calendar [www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml](http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml).

And School of Engineering Program Guide: [www.uoguelph.ca/engineering/undergrad-counselling-forms](http://www.uoguelph.ca/engineering/undergrad-counselling-forms)

Drop Date: The last date to drop this course, without academic penalty, is **Friday March 8<sup>th</sup>**.

Copies of out-of-class assignments: back-up your work frequently (computers crash and go missing), keep backups of all of your work for your own protection and for potential re-submission if requested

Accessibility: Contact CSD for your service or accommodation needs ext. 56208 or [csd@uoguelph.ca](mailto:csd@uoguelph.ca) or [www.csd.uoguelph.ca/csd/](http://www.csd.uoguelph.ca/csd/)

Academic Misconduct see [www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml](http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml)

Recording of Materials Students may not electronically / digitally record any presentation in the course without permission. Students may take pictures of the whiteboard work within the tutorials and equipment in the labs. Use of these whiteboard images is restricted to course learning requirements unless the authors of the whiteboard images in question grant further permission.

Resources The University Academic Calendar [www.uoguelph.ca/registrar/calendars/index.cfm?index](http://www.uoguelph.ca/registrar/calendars/index.cfm?index) and School Program guides [www.uoguelph.ca/engineering/undergrad-counselling-forms](http://www.uoguelph.ca/engineering/undergrad-counselling-forms) are both essential resources.

## Disclaimer

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