

MOUNT ROYAL UNIVERSITY
DEPARTMENT OF MATHEMATICS, PHYSICS & ENGINEERING
ENGINEERING 1271 COURSE OUTLINE FALL 2012

ENGINEERING DESIGN AND COMMUNICATION

INSTRUCTORS:

Ms. Kaitlin Ford	Design	001, 003	Office: B175	kford@mtroyal.ca
Dr. Janice Miller-Young	Design/Coord	002	Office: B170	jmyoung@mtroyal.ca
Mr. Troy Eggum	Design	004 - 006	Office: B175	teggum@mtroyal.ca
Mr. Patrick Hurst	Drawing	401-406	Office: B175	phurst@mtroyal.ca
Dr. Grace Reid	Writing	401,404,406 Thursdays	Office: B175	greid@mtroyal.ca
Ms. Erin Isings	Writing	402, 403, 405 Mon, Tuesdays	Office: B175	eisings@mtroyal.ca
Mr. Clark Beatty	Shop Manager	001-006	Office: I148	n/a

WEBSITES: Main <http://courseware.mymru.ca> : ENGR-1271 MAIN Fall 2012

REQUIRED TEXTS and EQUIPMENT:

- Textbooks: Beer, Leake, McMahon custom package
- Engineering Kit SKU# 1762787
 - Includes all required tools for the course including circles metric template, isometric ellipses template, engineer's metric scale, and logbook

OFFICE HOURS:

Office hours will be announced by individual instructors and posted on the Blackboard websites.

COURSE DESCRIPTION:

This course introduces the principles of engineering design, visual communications (technical drawing), written communications (technical writing) and leadership/project management. Students achieve basic competency in these areas through theoretical and applied assignments, team-based activities and a design project. Students learn about and work with the engineering design process, various technical writing styles/documents and various forms of graphical presentation such as multi-view orthographics.

COURSE OUTCOMES:

Upon successful completion of this course, students will be able to:

1. ***Foundational Knowledge***

- Define the steps in the design process and explain the contribution of each step to the final outcome.
- Explain the different team roles for effective teamwork.
- Draw and interpret isometric and multiview technical drawings.
- Write in a technical writing style.

2. ***Application Goals***

- Use appropriate design steps in solving open-ended problems.
- Follow an iterative approach that employs evaluation repeatedly in the design process.
- Develop problem definitions with specific constraints and objectives.
- Use appropriate idea-generation techniques.
- Use various information resources (library, internet, observing, questioning, etc.) to effectively to collect and assess information at all stages of the design process.
- Use appropriate analysis in evaluation and decision making.
- Document group activities, achievements, ideas, data and other information in logbooks.
- Demonstrate cooperation in support of effective teamwork.
- Produce technical drawings and reports as necessary to produce an effective transfer of ideas.

3. ***Integration goals***

- Demonstrate use of technical knowledge that is relevant to the design project.
- Be able to assess design solutions according to prioritized, objective measures.

4. ***Human dimension goals***

- Give and receive constructive criticism and suggestions.
- Observe team processes and identify elements that affect team performance.

5. ***Value goals***

- Demonstrate awareness of an engineer's obligation to society in all decision-making.
- Demonstrate honesty and integrity through originality and quality of work produced.

ASSIGNMENTS:

Writing	Indiv/Group	Value	Due	
Spelling & Gramar quiz	Indiv	3%	Week 3	<i>Sept 17-21</i>
Writing Assignment #1	Indiv	6%	Week 4	<i>Oct 1-5</i>
			Reading	<i>etc.</i>
Writing Assignment #2	Indiv	6%	Week	
Writing Assignment #3	Indiv	6%	Week 10	
Participation	Indiv	9%	Week 11	
Total		30%		
Drawing/Sketching		Value	Due	
Drawing Assignment #1	Indiv	6%	Week 3	<i>Sept 24-28</i>
Drawing Assignment #2	Indiv	6%	Week 5	<i>Oct 9-15</i>
Drawing Assignment #3	Indiv	6%	Week 7	<i>etc.</i>
Drawing Assignment #4	Indiv	6%	Week 9	
Test	Indiv	6%	Week 10	
Total		30%		
Design		Value	Due	
P1 – Design report	Group	4%	Week 3	
P2 – Performance	Group	2%	Week 4	<i>In class</i>
P2 – Design report	Group	4%	Week 5	
P3 – Problem definition	Group	1%	Week 5	<i>In class</i>
P3 – Alternative solutions	Indiv	4%	Week 7	<i>In class</i>
P3 – Decision matrix	Group	4%	Week 8	<i>In class</i>
P3 – Final Design	Group	1%	Week 9	<i>In class</i>
P3 – Performance	Group	3%	Week 11	<i>In class</i>
P3 – Presentation	Group	5%	Week 11	<i>In class</i>
P3 – Final report	Group	8%	Week 12	
Logbook	Indiv	4%	Week 12	
Total		40%		

Assignment schedule is tentative and subject to change with sufficient notice from your instructor.

LOGBOOKS:

A large part of an engineer's job involves recording his or her decisions and ideas during any involvement in projects. The use of bound logbooks to document the process of solving each design problem is an important element of both managing a project and generating documentation. These bound logbooks actually have legal standing and as a result, this course will encourage you to develop good record-keeping habits with logbooks. You will be expected to bring them to all design classes, and you will be expected to include project-related sketches in them. **Your logbook will be evaluated for evidence of following the design process** at the end of the semester.

ATTENDANCE and COMMUNICATIONS:

Due to the concentrated nature of this course and group work in design, students are expected to attend all lectures and tutorials. Attendance will be monitored. If a student is absent for a design class without a valid reason e.g. medical, then the student will *lose 5% of their group design project mark for the current project and that will be reassigned to the other group members*. A mark of 0 will be given for missed in-class activities. A participation mark will be given for the writing tutorials, which will be based on the *quality of in-class contributions*.

LATE POLICY:

All drawing and writing assignments are due in the week indicated, at the start of your tutorial (unless otherwise indicated by your instructors). Design assignments are due in the week indicated, generally at specific lab times as noted by your design instructor. *In general, late assignments will not be accepted* without proof of a medical reason or an emergency presented to your instructor within a reasonable time frame. If there is a reason you cannot get your assignment in on time, *notice must be given to your instructor ahead of time if possible, or as soon as possible*.

PLAGIARISM:

All students, working alone or in groups, must hand in their own work. Students are encouraged to work together and cooperate in order to solve problems. However, it is each student's responsibility to ensure that his/her work is unique and that any sources used are referenced properly and serve only to augment the student's work. The Mount Royal Code of Student Conduct defines *Academic Dishonesty* as the giving, taking or presenting of information or material that unethically or dishonestly aids an individual or group in the determination of academic merit. *Academic Dishonesty* includes (but is not limited to) *cheating* and *plagiarism*. *Plagiarism* occurs when a student submits or uses the ideas, words, images, data, or work of others as though it were his/her own. Plagiarism can include:

- Copying or paraphrasing from books or other sources without citing it properly.
- Copying work from another student.
- Working as a group on projects where the instructor requires individual work.
- Submitting papers or projects done for you by others.
- Doing work for (or loaning work to) others.
- Altering information or data.
- Using misleading references.
- Resubmitting previously evaluated work of your own without the consent of your current instructor (e.g., submitting work, even if you have revised it, that you have previously submitted in a different course).

Any form of Academic Dishonesty is a serious offense that reflects poorly on a student's intent to become a professional engineer. In all cases, plagiarism will result in a score of zero on the assignment in question (including the assignment with the original solution). Additionally, an incident report will be submitted to the Office of Student Conduct. Any second such offense will result in an F on the course. Please see the University regulations on Student Conduct.

GRADING:

A+	95 to 100	Very Good to Excellent - outstanding knowledge and abilities
A	90 to 94.5	
A-	85 to 89.5	
B+	80 to 84.5	Good - clearly above average performance and abilities, with knowledge of subject matter generally complete
B	75 to 79.5	
B-	70 to 74.5	
C+	66 to 69.5	Satisfactory - basic understanding of subject matter, passable performance
C	63 to 65.5	
C-	60 to 62.5	
D+	58 to 59.5	Minimum Pass - marginal performance, insufficient preparation for continuing with further design courses
D	50 to 57.5	
F	0 to 49.5	Fail - unsatisfactory performance or failure to meet course requirements

Students must pass the design, technical writing and drawing components of the course in order to pass the course. In other words, students must get over 50% in each of these three areas.

If a student misses an individual assignment (Drawing or Writing) for an acceptable reason, the assignment cannot be made up if it has already been handed back to the class. In this case, the weight of the missed assignment will be distributed evenly across the remaining 3 assignments. If two or more assignments are missed in any topic area (DS, Writing or Design), regardless of the reasons, the student will not be able to pass the course. ***All in-class work must be completed to a high standard for full participation marks.*** If you are experiencing difficulty with a particular area, please see your instructors as soon as possible for extra help. Leaving it to the end of the term will be too late.

STUDENT REQUEST FOR A MARK REVIEW:

Students wishing to discuss a mark on a particular assignment in this course are asked to complete the following steps before speaking with the instructor:

1. Review the requirements of the assignment.
2. Review grading criteria for the particular assignment.
3. Review the instructor's feedback on the assignment.
4. Arrange an appointment with your instructor and bring your assignment.

ENGINEERING SHOP:

The safety orientation for the Engineering Shop will take place during the lecture (3-hour class) in the week of Oct 22-26. Attendance is mandatory. For safety reasons, students who do not complete the orientation will not be allowed in the shop in the following weeks. A safety test will be given at the end of the orientation and students must achieve a minimum passing grade in order to be allowed to work in the shop.

The following Shop Rules are designed to facilitate productive use of limited resources. Your cooperation and observance of the Rules is appreciated:

1. Safety glasses will be worn at all times (they go on when you come in and they stay on until clean up is completed and you leave the room). No sandals or open-toed shoes are permitted.
2. No food or drink is allowed in the lab.
3. All coats, jackets, loose clothes, bags, backpacks etc. go on the art room tables outside the shop. No tools or project work is allowed in the art room (meetings, writing and drawing only).
4. Students, other than those actively assisting other students on machines (i.e. tailing off) will not be permitted to distract working students in any way or manner.
5. Students that do not comply with these rules and/or consistently are in violation of general and specific operating procedures will not be permitted to participate in the shop. You will also be denied access to the lab for theft or vandalism.

ACADEMIC ACCOMODATIONS

It is a student's responsibility to request academic accommodation. If you are a student with a disability who may require academic accommodation and have not registered with Accessibility Services, please contact their office at 403-440-6868. You must be registered with Accessibility Services to access academic accommodations.

IMPORTANT DATES:

The Drop/Add Deadline is Friday Sept 14. The Withdrawal Deadline is Friday Nov 16. There will be no classes Sept 6&7, Oct 8 (Thanksgiving), Nov 12-16 (Reading Day, Remembrance Day, and open shop time) and Dec 4&5.

REGULATIONS:

Please read the sections in the Mount Royal University Calendar concerning:

1. Changes in Registration.
2. Withdrawal Date.
3. Student Code of Conduct.
4. Academic Regulations.

These regulations will apply to you during the ENGR 1271 Fall 2012 course.