**MecE 260 Mechanical Design I** (Fall 2011)

**Instructor:** Dr. R. Toogood, P.Eng. <roger.toogood@ualberta.ca>
Office: 4-8H Mechanical Engineering. Open office hours or by appointment.

**Class Hours**
Lec MW 8:00 - 8:50, ME 2-1; Lab M 14:00 - 16:50, ME 2-1

**Corequisites**
MEC E 265 and CIV E 270. Anyone missing these or not currently registered, see Dr. Toogood ASAP.
NOTE: Anyone repeating the course should contact Dr. Toogood ASAP.

**Course Content**
1. Introduction to mechanical engineering design
2. Project management, teamwork, interpersonal skills, and communication
3. Design methodology
4. Design considerations (“Design for X”)
5. Introduction to materials and manufacturing
6. Writing technical and design reports
7. Engineering professionalism and ethics
8. Engineering analysis for design
9. Introduction to simulation of dynamic systems (MapleSim)
10. Project: Design, Build, Test, Document

**Textbook**
Required:
*Machine Design: An Integrated Approach 4th Ed.*, Norton, Prentice Hall. You will be using this in future design courses, and it is a useful design reference.
Recommended:
your ENGG 130 and CIV E 270 textbooks.

**MathCAD and Maple resources**
MathCAD and MapleSim both have good introductory tutorials in their online Help areas. See the course web page for links to other resources.

**Exams**
Midterm exam Wednesday, October 19, in class
Final exam Tuesday, December 13, 9:00 AM, location TBA
Both exams will be closed book with supplied data sheets.
Faculty approved **non-programmable** calculators allowed.
Contributions to the Final Grade

<table>
<thead>
<tr>
<th>Contribution</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Midterm exam</td>
<td>10%</td>
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<tr>
<td>Final exam</td>
<td>40%</td>
</tr>
<tr>
<td>Project reports</td>
<td>25%</td>
</tr>
<tr>
<td>Project test result</td>
<td>5%</td>
</tr>
<tr>
<td>Dissection Labs</td>
<td>10%</td>
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<tr>
<td>Mini-project</td>
<td>10%</td>
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Final grades in this course are **not** “curved”, that is, a student’s grade is **not** determined by their rank in the class. Letter grades are assigned approximately according to the scale shown at the right. The historical average in the course is about a B.

A (+/-) = excellent
B (+/-) = good
C (+/-) = acceptable
D (+) = minimally acceptable
F = unacceptable.

For group projects, the default is that all group members receive the same mark. However, in extreme cases, individual marks for group work may be adjusted by up to 30% of the course total (up or down) based on a conclusive and consistent review composed of an instructor assessment and a confidential peer evaluation.

It is necessary to pass the “theory” part of the course (mid-term and final exams) independently of the project components.

A missed midterm exam, for any reason, will result in the weight being transferred to the final exam. Deferred final exams will be held during Reading Week 2012. Requests for a deferral must be made to the Dean’s office within 48 hours of the missed final.

Additional References

These are all available in Cameron Library:

- **Mechanical Engineering Design**, J.E. Shigley and C.R. Mischke (this is the Classic book on mechanical engineering design)
- **Materials Selection in Mechanical Design**, M. F. Ashby.

The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.