ENGR 121 – Design II

Term – Spring 2016 (201601)

Instructor
Dr. Michael McGuire
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Office Hours
Days: 
Time: 
Location: EOW431

Course Objectives
The purpose of this course is to teach students the basics of working on an engineering design as part of a team. The design portion of this course will teach some basic technical knowledge and teamwork skills.

Learning Outcomes
Engineering Design
Students exiting ENGR 121 will be able to:
• Follow a standard structured process to design a system comprised of computer, electrical, mechanical, and software subsystems;
• Apply discipline-specific technical knowledge in the design process and understand the relevance of that knowledge to the disciplines in professional practice;
• Demonstrate teamwork skills in the successful accomplishment of an engineering design project;
• Identify business, social, environmental and regulatory considerations relevant to the execution of an engineering design project;
• Apply selected tools for effective management of time and resources in the context of an engineering design project.

Syllabus
ENGR 121 is a 1.0-unit course, in which instruction and activities engineering design are presented. You will be introduced to fundamental principles and practical aspects of biomedical, civil, computer, electrical, mechanical, and software engineering and will apply this knowledge in developing and implementing your own designs.

The contact hours for this course are allocated as follows:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hrs/Wk</th>
<th>Section Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plenary lecture</td>
<td>1</td>
<td>All students</td>
</tr>
<tr>
<td>Engineering design laboratory</td>
<td>2</td>
<td>≤32</td>
</tr>
</tbody>
</table>

Plenary Lectures
Plenary lectures provide technical information you will need to undertake Design Laboratory work, as well as discussion of topics on other aspects of the engineering profession. Attendance is mandatory since materials in the plenary lectures will form the basis for lab quizzes and questions.
Engineering Design Laboratory
You will work in teams of 3-4 to complete a number of design exercises and one major design project. Parts of the design exercises and the entire design project will be completed using the VEX robotic kits (http://www.vexrobotics.com/vex).

Assignments
Detailed descriptions of assignments will be posted on course Moodle sites and discussed in Plenary Lectures, and Design Laboratories. All assignments must be completed to the satisfaction of your instructors in order to pass the course.

Course Web Site:
CourseSpaces page for design laboratory and project: http://coursespaces.uvic.ca/my
There will be a separate website for each communications section.

Costs (prices are approximate)
Software
$79 USD from RobotC site (http://www.robotc.net/purchase/vexrobotics/)
$49 USD (365 day license) (http://www.robotc.net/purchase/vexrobotics/)
Deposit for VEX kits: $80/student ($30 fee +$50 refundable)

Design Laboratory Information:
The design laboratory will be start during the week of January 11th. During the lab of that week, students will be assigned to a group. You will be working with this group for the full term. Please bring your VEX deposit to your first laboratory session.

A-Section(s): A01 / CRN 21361
Days: Fridays
Time: 16:30-17:20
Location: FRA 159

B-Section(s)
Days Time(s):
B01 M 12:30-14:20
B02 M 14:30-16:20
B03 M 16:30-18:20
B04 T 11:30-13:20
B05 T 14:30-16:20
B06 T 16:30-18:20
B07 W 12:30-14:20
B08 W 14:30-16:20
B09 W 16:30-18:20
B10 R 12:30-14:20
B11 R 14:30-16:20
B12 R 16:30-18:20
B13 F 10:30-12:20
B14 F 12:30-14:20
B15 F 14:30-16:20
B16 T 18:30-20:20
Assessment:

**Engineering Design Grade Breakdown**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Assignments/Labs*</td>
<td>40%</td>
</tr>
<tr>
<td>Lab Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Design Final Project</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

* All labs and assignments will be weighted equally.

**Note:** Failure to complete all laboratory requirements will result in a grade of N being awarded for the course.

The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate Calendar.

**There will be no supplemental examination for this course.**

**Note to Students:**
Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the Chair of the Department by email or the Chair's Secretary to set up an appointment.

**Accommodation of Religious Observance**
[http://web.uvic.ca/calendar/GI/GUPo.html](http://web.uvic.ca/calendar/GI/GUPo.html)

**Policy on Inclusivity and Diversity**
[http://web.uvic.ca/calendar/GI/GUPo.html](http://web.uvic.ca/calendar/GI/GUPo.html)

**Standards of Professional Behaviour**
You are advised to read the Faculty of Engineering document Standards for Professional Behaviour, which contains important information regarding conduct in courses, labs, and in the general use of facilities.
[https://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf](https://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf)

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the entry in the current Undergraduate Calendar for the UVic policy on academic integrity.
[http://web.uvic.ca/calendar/FACS/UnIn/UARE/PoAcI.html](http://web.uvic.ca/calendar/FACS/UnIn/UARE/PoAcI.html)

**Course Lecture Notes**

Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.