ENGR 121 - Design II

Term – Spring 2017 (201701)

Instructor
Dr. Michael McGuire
Phone: +(250) 721-8684
E-mail:

Office Hours
Days: Wednesdays
Time: 2pm – 4pm
Location: EOW 451

Course Objectives
- The purpose of this course is to provide instruction on how to work on an engineering design as part of a team. The design portion of this course will teach basic technical knowledge and teamwork skills. The design methodology first covered in the ENGR110 and ENGR112 courses will continue to be developed. The communications portion of this course will cover some basic technical communication 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 in 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.

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 CourseSpace 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

Costs (prices are approximate)
Software website.
Can be downloaded for free from VEX robotics
( http://www.vexrobotics.com/vexedr/software )
You will need to create an account on the VEX
(https://www.vexrobotics.com/customer/account/login/)
Deposit for VEX kits: $80/student ($30 fee +$50 refundable)

Design Laboratory Information:
The design laboratory will be start during the week of January 9th. 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 21373
Days: Tuesdays
Time: 14:30-15:20
Location: BWC B150
A-Section(s): A06-A12 / CRN 23954
Days: Tuesdays
Time: 16:30-17:20
Location: BWC B150
Note: Communications section information will be on a separate outline sheet.

B-Section(s) Days: Time(s): Room: Lab Instructor Email
B02 M 16:30-18:20 ELW B336 TBA
B03 T 8:30-10:20 ELW B336 TBA
B04 T 11:30-13:20 ELW B336 TBA
B05 T 16:30-18:20 ELW B336 TBA
B06 W 12:30-14:20 ELW B336 TBA
B07 W 14:30-16:20 ELW B336 TBA
B08 W 16:30-18:20 ELW B336 TBA
B09 R 14:30-16:20 ELW B336 TBA
B10 R 16:30-18:20 ELW B336 TBA
B11 F 10:30-12:20 ELW B336 TBA
B12 F 12:30-14:20 ELW B336 TBA
B13 F 14:30-16:20 ELW B336 TBA
B14 T 18:30-20:20 ELW B336 TBA
Lab Safety Regulations:
Students are expected to comply with all lab safety instructions and rules. This includes following all instructions of Lab Instructors and Technicians. Food and drink are not permitted in the lab. **Non-compliance with these rules will result in grading penalties. The first infraction of lab safety rules will result in a warning. The second infraction will result in expulsion from that lab session with a zero grade being assigned to any lab activity due in that session in addition to a 5% penalty on the course grade. A third infraction of lab safety rules will result in the student being assigned a failing grade for the course.**

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/calendar2017-01/general/policies.html](http://web.uvic.ca/calendar2017-01/general/policies.html)

**Policy on Inclusivity and Diversity:** [http://web.uvic.ca/calendar2017-01/general/policies.html](http://web.uvic.ca/calendar2017-01/general/policies.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/calendar2017-01/undergrad/info/regulations/academic-integrity.html](http://web.uvic.ca/calendar2017-01/undergrad/info/regulations/academic-integrity.html)

**Equality:** This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of the course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way. It is not necessary for you to reveal your disability and/or confidential medical information to the course.
instructor. If you believe that you may require accommodation, the course instructor can provide you with information about confidential resources on campus that can assist you in arranging for appropriate accommodation. Alternatively, you may want to contact the Resource Centre for Students with a Disability located in the Campus Services Building.

The University of Victoria is committed to promoting, providing, and protecting a positive, and supportive and safe learning and working environment for all its members.

**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.