CENG/ELEC 299: Introduction to Electrical and Computer Engineering Design

Term – SUMMER 2015 (201505)

Instructor
Dr. Michael McGuire
Phone: (250) 721-8684
E-mail: mmcguire@ece.uvic.ca

Office Hours
Days: Thursday
Time: 2-3 PM
Location: EOW 431

Course Objectives & Learning Outcomes
Students exiting CENG/ELEC299 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.
• Design basic circuits using resistors, diodes, transistors, and operational amplifiers.
• Build an electronic circuit on a breadboard.
• Diagnose a malfunctioning circuit to apply corrective action.
• Create the layout for the PCB of a basic low frequency circuit.
• Write software for a simple real time system.

Syllabus
CENG/ELEC 299 is a 1.5 unit course which provides instruction and activities on the Computer Aided Design (CAD) tools used in electrical and computer engineering design. These tools will be used for drafting (mechanical and electrical circuit schematics), and printed-circuit board layout as well for scientific and system simulation. Students will also be exposed to the instrumentation devices used in control and measurement. By working through case studies, students will learn different phases of the electrical and computer engineering design process. They will also learn time and project management. Students will need to present and write a report their designs and describe problems encountered during the execution of the project.

Lectures

<table>
<thead>
<tr>
<th>Lectures</th>
<th>Labs</th>
<th>Location: ELW A359/ELW B220</th>
</tr>
</thead>
<tbody>
<tr>
<td>CENG299/ELEC299</td>
<td>B01 M</td>
<td>9:00-10:50 (closed)</td>
</tr>
<tr>
<td>Day: Mondays</td>
<td>B02 T</td>
<td>13:00-14:50 A. Jooshesh (<a href="mailto:jooshesh@uvic.ca">jooshesh@uvic.ca</a>)</td>
</tr>
<tr>
<td>Time: 16:30-17:20</td>
<td>B03 M</td>
<td>13:30-15:20 B. Keshavarz Hedayati (<a href="mailto:babak@ece.uvic.ca">babak@ece.uvic.ca</a>)</td>
</tr>
<tr>
<td>Location: ECS 116</td>
<td>B04 R</td>
<td>9:00-10:50 L. Nyantahe (<a href="mailto:lsn@uvic.ca">lsn@uvic.ca</a>)</td>
</tr>
<tr>
<td>Day: Wednesdays</td>
<td>B05 R</td>
<td>14:00-13:50 L. Pan (<a href="mailto:leyuanpan@gmail.com">leyuanpan@gmail.com</a>)</td>
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<tr>
<td>Time: 13:30-15:20</td>
<td>Location: ECS 125</td>
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**Optional Text**

Title: Practical Electronics for Inventors  
Author: P. Scherz and S. Monk  
Publisher: McGraw-Hill Education (3rd Edition)  
Year: 2013

**Assessment:**

- Labs: 30 %
- Project: 60 %
- Final Quiz: 10 %

**Project Grade Breakdown:**

- Project Planning and Teamwork: 20%
- Circuit Design: 20%
- PCB Layout: 10%
- Physical Design: 10%
- Software Development: 10%
- Integration and Testing: 15%
- Final Report and Presentation: 15%

**Notes:**

- Failure to complete all laboratory and project requirements will result in a grade of N being awarded for the course.
- Students are expected to attend all lectures and laboratory sessions. Failure to attend laboratory sessions and lectures 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 in current Undergraduate Calendar, which contains important information regarding conduct in courses, labs, and in the general use of facilities.

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult entry in current Undergraduate Calendar for the UVic policy on academic integrity.

http://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf

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.