ELEC 365 – Applied Electronics and Electrical Machines

Sep-Dec 2016 (A01: 11252, A02: 11253)

Instructor (Electrical Machines)
Babak Manouchehrinia
E-mail: bmn14@uvic.ca

Office Hours
Day: Tuesday
Time: 5:00–5:50 pm
Location: TBA

Instructor (Applied Electronics)
F. Gebali, P.Eng., Ph.D.
E-mail: fayez@uvic.ca

Office Hours
Everyday email or phone first
Location: EOW 433

Tutorial Instructor
Tayebi, Parniyan
E-mail: parniyan_tayebi@yahoo.com

Lab Instructors
B01: Jooshesh, Afshin
E-mail: jooshesh@uvic.ca
B02: Abugharsa, Sami
E-mail: sbma@uvic.ca
B03: Sidhu, Shivraj
E-mail: shivrajs@uvic.ca
B04: Wu, Jian
E-mail: wujian@uvic.ca
B05: Shah, Anand Rajendrabbhai
E-mail: arshah91@uvic.ca
B06: Ho, Danh Huu
E-mail: danhho@uvic.ca
B07: Alimohammadi, Helaleh
E-mail: halimoha@uvic.ca
B08: Salem Hesari, Sara
E-mail: ssalem@uvic.ca
B09: Tayebi, Parniyan
E-mail: parniyan_tayebi@yahoo.com

Markers
Ben Ameida, Ahlam
Matoug, Mohamed
E-mail: alhambenahmeida@gmail.com
E-mail: mmatoug@uvic.ca

Course Objectives
This course teaches the principles and analysis of electronic and electromechanical systems. Students will learn the analysis techniques for predicting electric circuit performance and learn the principles and operation of electric machines.
Learning Outcomes

1. Discuss the basic principles of magnetic circuits.
2. Discuss Faraday’s law for electromagnetic induction and its applications.
3. Discuss the basic principles of operation and construction details of transformers.
4. Explain operation and use of DC machines.
5. Discuss basics of induction motors, synchronous motors and develop their equivalent circuits.
6. Identify circuit parameters of transformers and derive its equivalent circuit.
7. Understand operation and analysis techniques of diode circuits.
8. Understand operation and analysis techniques of bipolar junction transistor (BJT) circuits.
9. Understand operation and analysis techniques of metal-oxide semiconductor field-effect transistor (MOSFET) circuits.
10. Understand operation and analysis techniques of operational amplifier (Op Amp) circuits.

Syllabus

Electrical Machines
Chapter 15 Magnetic Circuits and Transformers
Chapter 16 DC Machines (Except Sec. 16.7: DC generators)
Chapter 17 AC Machines (Except Sec. 17.4 Single-phase motors and Sec. 17.5: Stepper & brushless dc motors)

Applied Electronics
Chapter 10 Diodes
Chapter 13 Bipolar Junction Transistors
Chapter 12 Field-Effect Transistors (Except Sec. 12.7: CMOS logic gates)
Chapter 14 Operational Amplifiers

Lectures
Days: Tue, Wed, Fri
Time: 15:30 – 16:20
Location: HSD A240

Required Text

Assessment

<table>
<thead>
<tr>
<th>Activity</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Six assignments</td>
<td>0 %</td>
</tr>
<tr>
<td>Labs*</td>
<td>24 %</td>
</tr>
<tr>
<td>Four mid terms (15% each)</td>
<td>60 %</td>
</tr>
<tr>
<td>Four tutorials/quizzes (4% each)</td>
<td>16 %</td>
</tr>
<tr>
<td>Total</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Note: Failure to complete all lab 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

1. Only simple scientific calculators are allowed in midterm and quizzes.

2. Formula sheets will be provided during the midterms and will be posted prior to each midterm.

Accommodation of Religious Observance
http://web.uvic.ca/calendar2016-09/general/policies.html

Policy on Inclusivity and Diversity
http://web.uvic.ca/calendar2016-09/general/policies.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.

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/calendar2016-09/undergrad/info/regulations/academic-integrity.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.