CENG 455 – Real Time Computer Systems Design Project

Term –Spring 2017(201701)

Instructor      Office Hours
Mr. Saman Khoshbakht     Days:   TBA
Phone: TBA      Time:   TBA
E-mail: samankh@uvic.ca    Location:  TBA

Course Objectives
To provide understanding of the principles and practice of designing and implementing real-time computer systems and applications.

Learning Outcomes
1- Illustrate the characteristics of real-time computer systems.
2- Use experimental and production real-time operating systems.
3- Design and implement application and environment to ensure processing deadlines are met.
4- Justify the hardware support in real-time systems.
5- Assess hazards in real-time mission-critical systems.
6- Design and validate the requirements of a real-time system.

Syllabus
The characterization of a Real-Time Computer Systems. The significance and management of Time, Fault-Tolerance and Environmental Integration. The major part of the course will concentrate on the management of time as a computational resource. Several techniques including rate-monotonic scheduling, deadline scheduling, time-driven scheduling, etc. will be discussed. Several experimental and production Real-Time kernels will be examined. A dedicated focus on the NXP MQX RTOS will be applied in the Laboratory, as all projects will be built using this Real-Time Operating System.

LECTURE-Section(s):  A01 / CRN 20408   A02 / CRN 20409 (samankh@uvic.ca)
Days:  Tuesdays, Wednesdays, Fridays
Time:  8:30-9:20
Location: Cornett Building (COR) B111

LAB-Section(s):  B01 / CRN 20410 - B02 / CRN 20411   TAs: TBA
Days:  Mondays, Fridays
Time:  03:30 pm-06:20 pm (Monday) - 02:30 pm-05:20 pm (Friday)
Location: ELW B328

Required Text
Title: Notes available on course website
Author: Dr. Nikitas Dimopoulos
Publisher: Prentice Hall
Year: 2000

Optional Text (reserved in Library)
Title: Real-Time Systems
Author: Jane W.S. Liu
Publisher: Prentice Hall
Year: 2000
References:
See Class Website: http://www.ece.uvic.ca/~ceng455, Password will be provided in class.

Assessment:
Assignments  10%   Due Dates: TBA
Labs       30%
Mid-term   20%   Date:  TBA
Final Exam 40%

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

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<tr>
<th>Passing Grades</th>
<th>Grade Point Value</th>
<th>Percentage (for Instructor use only)</th>
<th>Description</th>
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<td>A+</td>
<td>9</td>
<td>90 – 100</td>
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<td>A</td>
<td>8</td>
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<th>Failing Grades</th>
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<tr>
<td>F</td>
<td>0</td>
<td>0 – 49</td>
<td>Fail. No supplemental.</td>
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<tr>
<td>N</td>
<td>0</td>
<td>0 – 49</td>
<td>Did not write examination or complete course requirements by the end of term or session; no supplemental.</td>
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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

Policy on Inclusivity and Diversity: http://web.uvic.ca/calendar2017-01/general/policies.html

Updated December 19, 2016
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

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

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.