UVic Department of Electrical and Computer Engineering

COURSE OUTLINE

SENG440 – Embedded Systems

Summer 2014

Instructor:

Dr. Mihai SIMA
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E-mail: msima@ece.uvic.ca

Office Hours:

Days: Monday
Time: 13:00-15:00
Location: EOW 313

Lectures:

A-Section(s): A01/A02 / CRN 30726/30727
Days: Monday, Thursday
Time: 8:30-9:50
Location: ECS-124

Labs: **Location: ELW**

B-Section(s) Days Time

Required Text:

Title: course notes available for download on the course webpage
Author: Mihai SIMA
Year: 2012

Optional Text:

Title: Embedded System Design: A Unified Hardware/Software Introduction
Author: F. Vahid and T. Givargis
Publisher: John Wiley & Sons
Year: 2001

Title: Computers as Components: Principles of Embedded Computing Systems Design
Author: W. Wolf
Publisher: Morgan Kaufmann
Year: 2000

Assessment:

Project:	50%	
Labs		
Mid-term	20%	Date: TBD
Final	30%	

Due dates for assignments:

TBD

The final grade obtained from the above marking scheme will be based on the following percentage-to-grade point conversion:

Passing Grades	Grade Point Value	Percentage For Instructor Use Only	
A+	9	90 - 100	
A	8	85 - 89	
A-	7	80 - 84	
B+	6	77 - 79	
B	5	73 - 76	
B-	4	70 - 72	
C+	3	65 - 69	
C	2	60 - 64	
D	1	50 - 59	
Failing Grades	**Grade Point Value**	**Percentage For Instructor Use Only**	**Notes**
E	0	35 - 49	Fail, conditional supplemental exam.
F	0	0 - 34	Fail, no supplemental exam.
N	0	0 - 49	Did not write examination, Lab or otherwise complete course requirements by the end of the term or session; no supplemental exam.

The rules for supplemental examinations are found on page 80 of the current 2013/14 Undergraduate Calendar.

Term in which E Grade was obtained:	Application Deadline for Supplemental Exam	Supplemental Exam Date
First term of Winter Session (Sept – Dec)	February 28 in the following term	First week of following May
Second term of Winter Session (Jan – Apr)	June 30 in the following term	First week of following September
Summer Session (May – Aug)	October 31 in the following term	First week of following January

Deferred exams will normally be written at the start of the student's next academic term; i.e., approximately 4 months following the deferral of the exam.

Course Description

1. Course Objectives
   - Expose the students to the embedded systems world
   - Make the students understand how to approach the design of embedded systems
   - Show the students where to look for information and how to interpret it

2. Learning Outcomes
   - Ability to choose an appropriate embedded processor for a specific application
   - Ability to write optimized embedded software
   - Ability to implement embedded applications in fixed-point arithmetic
   - Ability to perform optimal hardware-software co-design

3. Syllabus

Characteristics and design of embedded systems. Quality and performance metrics. Hardware, software, firmware. Processors for embedded systems. Software optimization techniques for embedded processors. Fixed-point arithmetic. Hardware optimization techniques. Standard peripherals for embedded systems. Memory. Interfacing. Formal models and specification languages for capturing system behavior. System partitioning and hardware/software co-design. Techniques for specification, exploration, and refinement.

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 ECE Chair by email or the ECE Chair's secretary to set up an appointment.

Accomodation of Religious Observances

See http://web.uvic.ca/calendar2014/GI/GUPo.html

Policy on Inclusivity and Diversity

See http://web.uvic.ca/calendar2014/GI/GUPo.html

Standards of Professional Behaviour

You are advised to read the Faculty of Engineering document Standards for Professional Behaviour at http://www.uvic.ca/engineering/current/undergrad/index.php#section0-25 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

http://web.uvic.ca/calendar2014/FACS/UnIn/UARe/PoAcI.html for the UVic policy on academic integrity.

Plagiarism detection software may be used to aid the instructor and/or TA's in the review and grading of some or all of the work you submit.