



## SENG 440 – Embedded Systems

Term – Summer 2017 (201705)

### Instructor

Dr. Mihai SIMA  
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### Office Hours

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

### Course Objectives

- Expose the students to the embedded systems domain
- Introduce design metrics for embedded systems
- 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

### 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 hardware-software co-design

### 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.

A-Section(s): A01 / CRN 30740  
A02 / CRN 30741  
Days: Monday, Thursday  
Time: 8:30 – 10:00  
Location: CLE A203

### Required Text

Title: Course Notes (available online)  
Author: Mihai SIMA  
Publisher: UVic  
Year: 2017



**Assessment:**

Project:	50%	Due Date: Friday, July 29, 2016
Mid-term	20%	Date: June 13-23, 2016 (TBD)
Final Exam	30%	

Notes:

Failure to complete all project 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.

<http://web.uvic.ca/calendar2017-05/undergrad/info/regulations/grading.html>

**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/calendar2017-05/general/policies.html>

**Policy on Inclusivity and Diversity**

<http://web.uvic.ca/calendar2017-05/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>

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/calendar2017-05/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.