Concordia University
Department of Electrical and Computer Engineering

COEN 6711 – Microprocessors and Their Applications (4 credits)
Fall 2019 Course Outline

Professor:

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1. Description

Introduction to microprocessors and their architectures. Examples of various microprocessors. Bus and I/O Organizations. Addressing modes. Timing. Software related issues. Memory and its hierarchy. Static and dynamic memory interfacing. Synchronous and asynchronous interfacing. Interrupts. DMA. Use of Co-processors. Single chip Micro-controllers. Examples of microprocessor applications at the system level. Lectures: three hours per week. Project: two hours per week.

2. Course Objectives

This course focuses on the hardware characteristics and subsystems of embedded systems and the development of software that controls the hardware. Various hardware components found in a typical embedded system are examined by the study of the ARM-based microcontroller architecture.

3. Evaluation

There are a project and two exams.

Evaluation tool	Weight
Project	30%
Exam 1	25%
Exam 2	45%

4. Course Organization

6.1. Lectures

There are one lecture a week. The lecture lasts approximately 2 hours and 30 minutes. The course slides will be posted on the course website. It is highly recommended to review the slides before you come to class. Note that the slides are not “lecture notes”; you are responsible for creating your own notes. You also need to periodically refer to the recommended textbooks.

The lecture is scheduled as follows: Thursdays from 2:45 to 5:15 Room FG-030.

6.2. Resources

There is no required textbook; A list of recommended books will be posted on moodle. Additional resources such as interesting Internet links will be posted on the course website as the course progresses.

6.3. Project

The purpose of the project is to perform a research about a topic related to the use of microprocessors/microcontrollers in a given application domain, such that avionics, biomedical, IA, ….
One week after the beginning of the session, groups of size three students each, should be formed. Each group should come-up with a research idea, then use the library resources to find out all the relevant research papers around the research idea. It's your responsibility to narrow down your research to two or three main scholarly published paper and write a report describing your research finding and summarizing these papers.

The Project will be evaluated based on:

- Delivery on time;
- Research methodology and approach;
- Written report; It is highly recommended to use the IEEE style in writing the report.
- Presentation

Also, each student should submit a TEAMMATE AND SELF-EVALUATION SHEET which will count 10% of the project grade.

Deadlines:

The project delivery deadline and presentation will be announced later on the course moodle website.

6.4. Exam 1

The exam 1 is scheduled on Thursday Oct 10^{th}. It will take place during the regularly scheduled class time in classroom (2h45 to 5h15). It will be your responsibility to ensure your availability for the exam. All the material covered before the exam date will be included in the exam.

- There will be no make-up exam 1. Students absent from the exam for any reasons will receive 0% for their exam grade and will write the exam 2 for 70% of their total grade.

6.5. Exam 2

- The date and place of the exam 2 will be announced later;
- Exam 2 will be counted for 60% of your total grade, if you do better on exam 2. That is, the larger of $\{(70\% \times \text{exam 2}), (45\% \times (\text{exam 2}) + 25\% \times (\text{exam 1}))\}$ will be used.

Notes:

- In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

5. Regulation

- At the beginning of the course you need to submit 1 Expectation of Originality Form to the course instructor;
- The expectation of originality form can be found at: http://www.concordia.ca/content/dam/encs/docs/Expectations-of-Originality-Feb14-2012.pdf;
- The final project report needs to have a cover sheet that must have the following sentence: "I certify that this submission is my original work and meets the Faculty's Expectations of Originality" and your signature;
- In case of any issue, it is very important to contact your instructor in timely manner;
- No food or drinks are permitted during the two exams;
- Cell phones and other communication devices: During exams, possession is forbidden. (Please note that just turning the cell phone off is not ok, it must not be in the student's possession). With communication modes such as text messaging available, the exams process can be compromised by the mere presence of these devices.

6. Academic Honesty

You are training to be a professional engineer. Consequently, we expect you to behave like a professional. A professional engineer is polite, considerate and respectful of others. It is rude, inconsiderate, and disrespectful to your fellow students and to the professor to talk in class or arrive late to the lecture. No one can learn if you are chatting to your neighbor!

All Concordia University students must abide by the University's Academic Code of Conduct (Concordia University Undergraduate Calendar Section 16.3.13). Any suspected violation of the Code will be turned over to a University Committee for investigation.