SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: EMBEDDED MICROCONTROLLERS II

CODE NO. :   ELN340   **SEMESTER:**   6

PROGRAM: ELECTRICAL ENGINEERING TECHNOLOGY

AUTHOR: MARK ALLEMANG

DATE: JAN. 2012   **PREVIOUS OUTLINE DATED:**   JAN. 2011

APPROVED: *"Corey Meunier"*

                   CHAIR   DATE

TOTAL CREDITS: 4

PREREQUISITE(S):   ELN331, ELN335

HOURS/WEEK: 4

EMBEDDED   ELN340
MICROCONTROLLERS II

I.   COURSE DESCRIPTION:
This is a lab course designed to allow the students to develop their problem solving skills by carrying through to completion several Embedded Microcontroller projects. Each project will have hardware and software components. Source code for software will be written in Assembly Language and in C language.

II.   LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1.   Writing Assembly Language Programs for a Microcontroller
      Potential Elements of the Performance:
      Write source code in assembly language for an embedded microcontroller.
      Assemble and debug the program.

2.   Writing C Language Programs for a Microcontroller
      Potential Elements of the Performance:
      Write source code in C language for an embedded microcontroller.
      Compile and debug the program.

3.   Building Interface Circuitry
      Potential Elements of the Performance:
      Design and build hardware interface circuitry for an embedded microcontroller.

4.   Testing Completed Project
      Potential Elements of the Performance:
      Test the completed project and debug the problems.

III.   TOPICS:

1.   Analog to Digital Conversion and 7 segment display project
2.   Key-pad scanning and display project
3.   Stepper Motor Control Project.

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IV.   REQUIRED RESOURCES/TEXTS/MATERIALS:
None.

V. EVALUATION PROCESS/GRADING SYSTEM:

Evaluation will be based on the following:
- 30% Achieving "milestone" dates for projects
- 30% Lab Reports
- 30% practical tests and quizzes
- 10% attendance

If a quiz is missed for a legitimate reason, it can be rewritten at the end of the course.

The following semester grades will be assigned to students:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

VI. SPECIAL NOTES:

Attendance:
Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

EMBEDDED
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VII.   COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.