

SYLLABUS
PART I
EDISON COMMUNITY COLLEGE
ELT 241S MICROCONTROLLERS
3 CREDIT HOURS

COURSE DESCRIPTION

Introduction to wiring and programming a micro-controller. The target micro-controller for applications in this course will be one that is common in industrial applications. Programming is done in assembly language. The student will program, debug, and interface inputs and outputs to a single board computer. Prerequisite: ELT 141S. Lab fee.

COURSE GOALS

The student will:

Bloom's Level		Program Outcomes
1	1. Describe the fundamental elements of every computer system.	1
5	2. Create flow charts to show the flow/function of a program.	4
5	3. Write programs to move data and perform arithmetic and logic operations.	4
5	4. Create branches and loops within a program using conditional statements.	4
5	5. Reorganize code into subroutines.	4
3	6. Use assembler directives to enhance source code.	4
3	7. Use program memory and variable memory in programs.	4
4	8. Connect input and output devices with the micro-controller.	1
1	9. Describe the process of servicing interrupts.	4
3	10. Demonstrate the process of analog-to-digital conversion.	2, 4
3	11. Produce output events to happen at specified times.	4
2	12. Explain the difference between asynchronous and synchronous serial communications.	2, 4

CORE VALUES

The Core Values are a set of principles that guide in creating educational programs and environments at Edison. They include communication, ethics, critical thinking, human diversity, inquiry/respect for learning, and interpersonal skills/teamwork. The goals, objectives, and activities in this course will introduce/reinforce these Core Values whenever appropriate.

TOPIC OUTLINE

1. Micro-controller Introduction
2. CPU Architecture
3. Instruction Set
4. Micro-controller Assembly
5. Program Development
6. Structured Assembly Preprocessor
7. Alphanumeric Liquid-Crystal Displays
8. Rotary Pulse Generators
9. Interrupts and Interrupt Timing
10. Analog-to-Digital Conversion

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11. Time-Interval Measurements
12. Math Subroutines
13. Serial Communications