

# Minnesota State College Southeast

## ELEC 2230: Microcontroller Applications

### A. COURSE DESCRIPTION

Credits: 5

Lecture Hours/Week: 3

Lab Hours/Week: 4

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course will introduce the student to embedded controllers. The student will configure microcontrollers to read switches and drive output devices. Students will explore the features and benefits of single chip systems. (Prerequisites: ELEC2211 Digital Electronics I I) (5 credits: 3 lecture/2 lab)

**B. COURSE EFFECTIVE DATES:** 07/01/2010 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

### D. LEARNING OUTCOMES (General)

1. Define microcontroller terms
2. Describe microcontroller ports
3. Configure program
4. Use an instruction set
5. Configure control program
6. Analyze memory map
7. Describe loops
8. Describe stack operation
9. Configure stepper drive
10. Explain clocking modes
11. Troubleshoot programming problems
12. Identify sleep modes
13. Use JTAG interface
14. Analyze block diagrams
15. Program ADC operation
16. Program DAC operation
17. Describe data acquisition system
18. Control servo motor
19. Display position control

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted