

Minnesota State College Southeast

ELEC 2218: Programmable Controllers 1

A. COURSE DESCRIPTION

Credits: 2

Lecture Hours/Week: 1

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course covers the basic operation of a programmable logic controller. The hardware and software aspects of the controllers will be explored in the lab. The basic ladder diagram, timer, counter and sequencer instructions will be covered. (Prerequisite or concurrent enrollment in ELEC1202) (2 Credits: 1 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 10/14/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Analyze ladder diagrams
2. Write programs
3. Edit programs
4. Program timer function

D. LEARNING OUTCOMES (General)

1. Describe programmable controller
2. Identify AC/DC input modules
3. Identify AC/DC output modules
4. Identify logic input/output modules
5. Identify analog input/output modules
6. Identify relay output modules
7. Describe wiring/shielding practices
8. Identify PLC memory structure
9. Define I/O devices
10. Apply addresses to I/O to external devices
11. Analyze ladder diagrams
12. Identify programming devices
13. Design PLC programs, including use of Boolean ladder logic to optimize circuits
14. Edit PLC programs
 - Program relay functions
 - Program latching relay functions
 - Program timer function
 - Program counter function
 - Program sequencer functions
15. Develop Human-Machine Interfaces (HMI) for PLC systems
16. Describe troubleshooting procedures
17. Exhibit safe work practices

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted