

COURSE INFORMATION:

Course Prefix/No.:	EEM 250
Course Title:	Programmable Controllers Applications
Lecture Hours/Week:	3.0
Lab Hours/Week:	3.0
Credit Hours/Semester:	4.0

[Distance Learning Attendance/VA Statement](#)
[Textbook Information](#)

COURSE DESCRIPTION:

This course is a study of programmable control systems with emphasis on basic programming techniques. Additional topics such as interfacing, data manipulation, and report generation will be covered.

COURSE COMPETENCIES:

Upon successful completion of this course, the student should be able to:

Module 1 – Fundamentals of the Allen-Bradley SLC 500 PLC and/or ControlLogix PLC

- Discuss Logic Functions
- Describe PLC Components
- Explain Program Scan & Update
- Explain Ladder Logic

Module 2 – Wiring the Power Supply, Input Modules, and Output Modules

- Explain Discrete Input Module Operation
- Explain Discrete Output Module Operation
- Draw an Input/Output Diagram
- Wire the Power Supply
- Wire the Digital Inputs
- Wire the Digital Outputs

Module 3 – Introduction to Rockwell™ Software

- Create and Manage Files
- Navigate through Menu Selections
- Configure the AB SLC 500 and/or ControlLogix PLC
- Establish Communication with the AB SLC 500 and/or ControlLogix PLC
- Perform Data Transfer to and from the AB SLC 500 and/or ControlLogix PLC

Module 4 – Basic Programming and Program Design

- Perform Basic Ladder Logic Programming
- Explain the addressing of Inputs/Outputs

- Create Variable Tables and Declarations
- Utilize Problem Solving Program Design Skills
- Forcing and Un-Forcing Logic

Module 5 – Function Block Programming

- Program using Timers
- Program using Counters
- Program using Compare Functions
- Program using Math Functions
- Program using Data Handling and Manipulation

Module 6 – Advanced Programming

- Program using Jumps/Label
- Program using Master Control
- Program using Subroutines/Call
- Program using The Output Sequencer
- Program using Analog Inputs and Outputs

MINIMAL STANDARDS:

Assignments and attendance must be completed as designated in “Evaluation Strategies/Grading.” Criteria for minimal acceptable performance will be provided by the instructor.

REQUIREMENTS:

Attendance Policy

The college attendance policy, stated in the college handbook, will be honored. The instructor will provide specific requirements for the course.

Academic Honesty

Students are expected to adhere to the college policy regarding student conduct as stated in the college handbook.

Assignments

Students are expected to complete all assignments and any supplementary exercises designated by the instructor.

EVALUATION STRATEGIES/GRADING:

Successful completion of the course requires the completion of each module with an average of 70 points. Grades will be calculated from work attitude, all tests/projects, homework assignments, and laboratory assignments.

Grading Scale:

A = 90.0 – 100
B = 80.0 – 89.9
C = 70.0 – 79.9

D = 60.0 – 69.9
F = 00.0 – 59.9

Evaluation Method:

Tests/Projects (minimum of four total)	50.0% for each Module
Lab Work	25.0% for each Module
Work Attitude	25.0% for each Module

Work Attitude is defined as:

- Participation
- Cooperation
- Appearance
- Effort
- Safety
- Responsibility
- Professionalism
- Attendance
- Self Motivation
- Works Independently

ENTRY LEVEL SKILLS:

The student must be able to read and design basic relay ladder diagrams. The student must also have basic computer skills.

PREREQUISITES/CO-REQUISITES:

Prerequisite: EEM 145

Co-requisite: None

METHODS OF INSTRUCTION:

This course may be offered in traditional classroom format or as a self-paced, CD-based, hybrid delivery format.

Lectures, reading assignments, projects, discussions, video presentations, multimedia presentations, and web content are the major teaching methods used in this course.

Disabilities Statement: Any student who feels s/he may need an accommodation based on the impact of a disability should contact the Special Resources Offices (SR) at 803-327-8007 in the 300 area of Student Services. The SRO coordinates reasonable accommodations for students with documented disabilities.

Effective: 2009FA