

SYLLABUS  
PART I  
EDISON COMMUNITY COLLEGE  
ELT 151S PROGRAMMABLE LOGIC CONTROLLERS  
3 CREDIT HOURS

COURSE DESCRIPTION

Preparation and applications of programmable logic controllers to industrial process and manufacturing control. Provides hands-on experience in programming and troubleshooting. AllenBradley SLC 500 PLCs are used primarily in this course. Lab fee.

COURSE GOALS

The student will:

1. Identify the major parts of a PLC system.
2. Describe the major classifications of input/output (I/O) modules.
3. List and define the functions of each of the major sections of a PLC CPU.
4. Convert numbers to binary and other numbering systems.
5. Describe the operation of a typical input or output module.
6. Create basic ladder logic diagrams from a sequence of operational steps.
7. Develop PLC ladder logic programs.
8. Explain the various PLC operational modes.
9. Apply different timer and counter functions in PLC programs.
10. Apply arithmetic and logic functions in PLC programs.
11. Program a SEQUENCER function.

CORE VALUES

The Core Values are a set of principles which 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. Programmable Logic Controllers
2. PLC Hardware Components
3. Numbering Systems
4. Fundamentals of Logic
5. Basics of PLC Programming
6. Wiring Diagrams and Ladder Logic Programs
7. Programming Timers
8. Programming Counters
9. Program Control Instructions
10. Data Manipulation Instructions
11. Math Instructions
12. Sequencer and Shift Register Instructions