

**Gulf Coast Community College  
Computer Integrated Manufacturing**

**EST-2542C SYLLABUS  
Programmable Logic Controllers**

**Course Description:**

**EST 2542C Programmable Logic Controllers** Pre-requisite: CET 1114C Digital Circuits. This course covers the applications, servicing, and troubleshooting of programmable logic controller circuits. The Allen-Bradley Micrologix 1500 PLC processor with RSLOGIX 5/500 software is applied to control applications involving rung programming, sequencers, timers, counters, data manipulations instructions, math instructions, file-to-file moves, and communications using A/B Data Highway. Laboratory experiences include the design and troubleshooting of ladder logic programs with interfacing to hydraulics, pneumatics, and electrical sensors such as relays, limit switches, photo sensors, proximity detectors, pressure switches, solenoid valves, and a pneumatic pick-and-place robot for industrial applications. 4 Credit Hours, 6 contact hours.

**Program Outcomes:**

1. Wire and test inputs and outputs to a PLC as demonstrated by lab assignment.
2. Program a PLC for relay logic application as demonstrated by lab assignment.
3. Design and program a PLC for encoders/decoders as demonstrated by lab assignment and a test.
4. Interface pneumatic valves and program I/O applications as demonstrated by lab assignment.

**Instructor:**

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**Books Required:**

Programmable Logic Controllers Hardware and Programming by Max Rabiee 2002

**Optional References:**

Micrologix 1200 and Micrologix 1500 Instruction Set Allen-Bradley # 1762-RM001C-EN-P  
Download free from AB.com

**Materials Required:**

- Jump Drive or 3½" Floppy Disk
- 3 Ring Notebook required. (1-1/2")

**Grading:**

Tests and Quizzes 50%  
Lab Assignments 50%  
Test taken late will lose 10% per class day

**Grading Scale:**

90 - 100 =	A
80 - 89 =	B
70 - 79 =	C
60 - 69 =	D
0 - 59 =	F

**Course Content:**

See class Outline for details on class and lab assignments