

DEPARTMENT: Industrial and Engineering Technology

COURSE NUMBER: EMT 310

CREDIT HOURS: 4

- I. TITLE: Programmable Logic Controllers
- II. CATALOG DESCRIPTION: This course will cover the techniques of utilizing the programmable logic controllers (PLCs) in the industrial environment. Hardware aspects, programming techniques, and interfacing situations will be covered.
- III. PURPOSE: The purpose of this course is to introduce the student to factory automation techniques through the use of programmable logic controllers.
- IV. COURSE OBJECTIVES: The course will introduce students to hardware (module connections and setup), programming in ladder logic (relay logic simulation, timers, counters, addressing and data transfer) and interfacing.
- V. CONTENT OUTLINE:
 1. Hardware (SLC 500, PLC-5, ControlLogix)
 2. Software (RSLogix 5, 500 & 5000 and RSLinx)
 3. Memory structure
 4. Number Systems
 5. Timers and counters
 6. Data manipulation
 7. Slot addressing
 8. Comparison instructions
 9. Computational instructions
 10. Logical instructions
 11. BCD interfaces
 12. Analog input/output
 13. Sequencer instructions
 14. Remote racks
 15. Subroutines
 16. Data collection techniques
 17. Communication protocols
- VI. INSTRUCTIONAL ACTIVITIES:
 1. Lectures
 2. Class discussions
 3. Computer simulation/programming
 4. Problem solving
 5. Field trip
- VII. FIELD, CLINICAL, AND/OR LABORATORY EXPERIENCES:

Laboratory assignments related to the lecture topics.
- VIII. RESOURCES: Library, computer software.

IX. GRADING PROCEDURES:

90-100	A
80-89	B
70-79	C
60-69	D
< 60	E

Practical Quizzes	20%
Design projects	40%
Midterm/Final (20% each)	40%

X. ATTENDANCE POLICY:

This course will adhere to the policy published in the MSU Undergraduate Bulletin. Attendance is expected.

XI. ACADEMIC HONESTY POLICE:

This course will adhere to the policy published in the MSU Undergraduate Bulletin. Cheating or attempting to represent another person's work as your own will not be tolerated. This includes exams, quizzes, homework, and laboratory data and reports. Penalties for cheating range from receiving a zero on the exam/assignment to receiving a failing grade for the course.

XII. TEXT (REQUIRED):

"Programmable Logic Controllers" by James A. Rehg and Glenn J. Sartori, Pearson/Prentice-Hall, ISBN-13 978-0-13504881-8, (2nd Edition/2009).

XIII. PREREQUISITES: TSM 110, CSC 232

XIV. STATEMENT OF AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY:

Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or other provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities.

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