1. **COURSE TITLE\*:** Manufacturing Control Systems
2. **CATALOG – PREFIX/COURSE NUMBER\*:** EENG 2285
3. **PREREQUISITE(S)\*:** EENG 2205 **COREQUISITE(S)\*: N/A**
4. **COURSE TIME/LOCATION: (*Course Syllabus – Individual Instructor Specific*)**
5. **CREDIT HOURS\*: 3 LECTURE HOURS\*: 2**

**LABORATORY HOURS\*: 1 ( 2 contact hours) OBSERVATION HOURS\*:**

1. **FACULTY CONTACT INFORMATION: *(Course Syllabus – Individual Instructor Specific)***
2. **COURSE DESCRIPTION\*:**

Introduction to the use of programmable logic controllers in industry. Topics include ladder logic programming, sensors used in manufacturing control systems and applications of PID loops. Allen Bradley Controllers are the PLC used in this course. Laboratory complementing class work.

1. **LEARNING OUTCOMES\*:**

At the completion of this course, the student should have an understanding of and be able to apply the following topics:

1. Read a ladder logic diagram and describe the operational sequence
2. Describe the use of PLCs in industry
3. Connect a PLC to appropriate I/O equipment and devices
4. Program a PLC to perform a multiple control function
5. Programming timers
6. Programming counters
7. Program control instructions
8. Data manipulation instructions
9. Math instructions
10. Sequencer and shift register instructions
11. **ADOPTED TEXT(S)\*:**

*Programmable Logic Controllers*

By: Frank Petruzella

McGraw-Hill, 6th edition, 2023

ISBN 978-1-264-44684-1

Hard copy is required

**9a: SUPPLEMENTAL TEXTS APPROVED BY FULL TIME DEPARTMENTAL FACULTY (INSTRUCTOR MUST NOTIFY THE BOOKSTORE BEFORE THE TEXTBOOK ORDERING DEADLINE DATE PRIOR TO ADOPTION) \*\*\*.**

1. **OTHER REQUIRED MATERIALS: (SEE APPENDIX C FOR TECHNOLOGY REQUEST FORM.)\*\***

Laptop computer (program required)

Scientific calculator

Portable drive (flash, thumb)

The following software is required and free to students and should be installed prior to first class.

-Automation Studio

-RSLinx Classic

-RSLogix Emulate 500

-RSLogix Micro English

1. **GRADING SCALE\*\*\*:**

Grading will follow the policy in the catalog. The scale is as follows:

A: 900 – 1000

B: 800 – 899

C: 700 – 799

D: 600 – 699

F: 0 – 599

You will start the semester with zero (0) points and will earn points to achieve your final grade.

1. **GRADING PROCEDURES OR ASSESSMENTS: (*Course Syllabus – Individual Instructor Specific)***

|  |  |  |
| --- | --- | --- |
| *Category* | ***EXAMPLE ONLY***  *Total Points* | *% of Grade* |
| Tests (4x100) | 400 | 40% |
| Final Project/Lab Report) | 200 | 20% |
| Labs/Lab Reports | 400 | 40% |
| Total | 1000 | 100% |

1. **COURSE METHODOLOGY: *(Course Syllabus – Individual Instructor Specific)***

The course will consist of lectures, demonstrations, videos, class discussions and laboratory experiments. It is recommended that students stay current on reading assignments and review the chapters in the book before coming to lecture. The instructor may use Canvas as a supplement to this course. Canvas may be used to distribute assignments, to collect assignments, and to administer take home and in class tests. Every student is expected to come to class with a laptop.

1. **COURSE OUTLINE: *(Course Syllabus – Individual Instructor Specific)***

Instructor reserves the right to modify outline as needed to achieve learning objectives



**15. SPECIFIC MANAGEMENT REQUIREMENTS\*\*\*:**

This is a hands-on lab-oriented class, your attendance in the lab sessions is highly recommended.

**16. FERPA:\***

Students need to understand that your work may be seen by others. Others may see your work when being distributed, during group project work, or if it is chosen for demonstration purposes. Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

**17. DISABILITIES:\***

Students with disabilities may contact the Disability Services Office, Central Campus, at 800-628-7722 or 937-393-3431.

**18. OTHER INFORMATION\*\*\*:**

**SYLLABUS TEMPLATE KEY**

**\*** Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

**\*\*** Any alteration or addition must be approved by the Curriculum Committee

**\*\*\*** Item should begin with language as approved in the master syllabus but may be added to at the discretion of the faculty member.