Wayne County Community College District

COURSE SYLLABUS

MCT 215   Advanced Programmable Logic Controllers

CREDIT HOURS: 3.00

CONTACT HOURS: 60.00

COURSE DESCRIPTION:
This is an advanced course in Programmable Logic Controllers in programming and hardware using Allen-Bradley programmable logic controllers' family. Students will use programmable logic controllers in industrial automation environments. PLC installation and maintenance will be covered in this course.

PREREQUISITE: *MCT 208*

EXPECTED COMPETENCIES:
Upon the completion of this course, students will be able to:
- Define programmable logic controllers (PLC) and its applications.
- Identify and describe the function of hardware components of PLC.
- Describe the common operation modes in PLC's.
- Developing fundamental PLC wiring diagrams and ladder diagrams.
- Convert relay ladder diagram to PLC ladder diagram.
- Develop, analyze, and interpret typical PLC timer logic ladder diagram.
- Describe analyze and interpret typical PLC counter logic ladder diagram.
- Describe the function of override, jump, immediate input and output instructions.
- Describe the forcing capability and safety consideration built into PLC's and programmed   into a PLC installation.
- Define data manipulation instructions applied to PLC program.
- Define the operation of discrete I/O's and multibit and analog types.
- Describe the operation of a closed-loop control system and programming to PLC's.
- Develop analyze, and interpret programs involving math instructions.
- Differentiate developing between off-line and on-line programming.
- Describe sequence instructions and applications.
- Describe proper grounding, preventive maintenance tasks associated with PLC's.
- Describe the typical uses of various types of industrial sensors.
- Choose appropriate sensors for various applications.
- Develop ladder diagram to develop programs.
- Utilize structured text to develop routines.
- Develop sequential function chart programs
- Develop function block routines.
- Be able to troubleshoot different programming methods.

ASSESSMENT METHODS:
Student performance may be assessed by examination, quizzes, case studies, oral conversation, group discussion, oral presentations. The instructor reserves the option to employ one or more of these assessment methods during the course.

GRADING SCALE:
90%-100% = A
80%-89.9%= B
70%-79.9%= C
60%-69.9%= D
<60% = E