MOHAWK VALLEY COMMUNITY COLLEG
UTICA AND ROME, NEW YORK

Course Outline

Course Name: ET241 Programable Logic Controllers II
Course Credit Hours: C - 2, P - 4, ILS - CR - 4

I. Catalog Description:

(PLCs) started in ET 141. The student will explore the nature of the PLC programming framework as specified by the IEC 61131-3. The course will introduce other PLC systems and Advanced Programming Interfaces (API). The course will discuss PLC based systems initial and advanced troubleshooting techniques. In addition, the student will design and build control circuit that are built around a PLC. PLC system lecture and lab topics include Proportional–Integral–Derivative (PID) controls, analogue based circuits, motor controls circuits with VFDs and Human Machine Interface (HMI). The course will explore theory and method of networking and reading the PLC memory and aggregating the data.

II. Student Learning Outcomes:

- *Demonstrate an understanding of the IEC 61131-3 standard common framework for programming PLCs*
- *Open a programming interface and read code sequences written in different IEC 1131-3 PLC programming languages.*
- *Using a programming interface design and construct a simple program written in the IEC 61131-3 Functional Block Diagram language.*
- *Demonstrate an understanding of PLC and PLC based systems troubleshooting*
- *Construct and troubleshoot PLC based hardware applications.*
- *Demonstrate an understanding of analog based PLC control systems*
- *Design and construct analog and discreet control circuits*
- *Demonstrate an understanding of the concepts and methods used for PID control.*
- *Build and troubleshoot simple laboratory PLC PID control applications.*
- *Demonstrate knowledge of basic functions and identify components of Human Machine Interface (HMI)*
- *Demonstrate an understanding of HMI as compared to Supervisory HIM vs Supervisory Control and Data Acquisition (SCADA)*
- *Demonstrate an understanding of the methods to read, aggregate, and store data from PLC memory.*