COURSE INFORMATION FORM

DISCIPLINE INTE

COURSE TITLE Networking – HMI for the PLC

CR.HR 4 LECT HR 2 LAB HR 4 CLIN/INTERN HR CLOCK HR

CATALOG DESCRIPTION

This class will assist the student in developing and creating graphical user interfaces to use as a front end for PLC applications. They will learn the basics for the most common HMI software in use. They will learn Ethernet and serial communication protocols and how to set up PLC networks using TCP/IP and RS-232.

PREREQUISITES

INTE 272

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)

Upon completion of this course, the student will be able to:

1. Use and document safe work practices with PLCs.
2. Build graphical user interfaces for PLC applications.
3. Demonstrate how to interface between a PLC processor and a PC.
4. Create an Ethernet network.
5. Create a RS-232 network.
6. Demonstrate an understanding of TCP/IP networking.
7. Demonstrate an understanding of serial communication protocols.

GENERAL EDUCATION OUTCOMES (ESO)

Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

Critical Thinking: Define, analyze, and evaluate information, materials and data (ESO)

3. Unambiguously define problems and issues (2 – 5)
PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

The student will demonstrate:

1. The ability to exhibit competency in the entry-level skills of technical profession in Industrial technology.
2. The ability to exhibit competency in the entry-level skills of Programmable Logic Controllers.

Written Test: 1 - 7
Practical Test: 1 – 7
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Safety
   A. Safety procedures
   B. Safe work practices

II. PLC programming

III. HMI Programming skills
   A. Create GUI frontend for PLC applications
   B. Create drivers for communication

IV. TCP/IP protocols
   A. Create an Ethernet network
   B. Develop communication details for adding multiple PLC’s and PC’s to a network

V. Serial Communication protocols
   A. Create a serial communication network
   B. Develop communication details for adding multiple PLC’s and PC’s to a serial network

VI. Portfolio
   A. Electronic copy of PLC/HMI programs
   B. Hard copy of relay logic
   C. Hard copy of PLC programming
   D. Safety procedures