

# Bemidji State University

## TADT 3277: Programmable Logic Controllers

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course offers students an in depth exposure to programmable logic controller (PLC) devices, the main components of PLC systems, and DC/AC motor and fluid power. The course will cover configuration and programming of PLCs for motor and hydraulic system control using various programming tools.

Prerequisite: PHYS 1102 and junior status.

### B. COURSE EFFECTIVE DATES: 08/22/2016 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Fluid power and Hydraulic systems
2. Input/output devices
3. Ladder logic diagrams and programming
4. Logic gate functions
5. Math, compare, jump, and reset instructions
6. Number systems and codes
7. Timer and counter instructions

### D. LEARNING OUTCOMES (General)

1. . be able to create a PLC project and program using PLC software
2. . be able to explain how basic hydraulic and pneumatic systems operate and perform work.
3. . be able to identify basic components of a PLC system and explain how they function.
4. . be able to explain the binary, hexadecimal, and octal number systems and ASCII and EBCDIC alphanumeric codes.
5. . be able to create ladder logic diagrams for process and industrial control problems.
6. . be able to describe the purpose, functions, and operations of a PLC.
7. . be able to explain the operation of various sensors, switches, relays, and motor control devices.

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

### G. SPECIAL INFORMATION

None noted