

# Bemidji State University

## TADT 2370: Automation Technology

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

An introduction to the field of automation as found in the industrial environment. Concepts of CNC, CAM PLC's, vision systems, bar coding and robotics are explored.

### B. COURSE EFFECTIVE DATES: 08/24/2014 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Assist individuals in exploring, assessing, and preparing for careers relating to technology; measured by class assignments, tests and team activity.
2. Assist individuals to become life-long learners in a technological world; measured by class discussion assignments, tests and team activity.
3. Broaden individual's understanding of technology through interdisciplinary connections; measured by class assignments and tests.
4. Develop creative, design, and technological skills; measured by class assignments and tests.
5. Develop individual's understanding of the impacts of technology; measured by class discussion, assignments and tests.
6. Prepare individuals to assess and affect change through technology that meets global needs; measured by class assignments and team activity.

#### **D. LEARNING OUTCOMES (General)**

1. be able to teach mode program a 5 axis robotic manipulator that performs according the published exercise requirements
2. be able to list and describe an assortment of machine sensing devices through class discussions and exams.
3. be able to explain the differences between Mechanization and Automation through class discussions and exams.
4. be able to identify and explain the primary components and terminology of general automation devices such as industrial robots, sensors, PLCs, vision systems, automatic data collection systems and electronic communication for automation networks through class discussions, exams and lab exercises.
5. be able to understand and explain the basics of CNC machine control through class discussions and exams.
6. be able to create simple working PLC programming that meets the published exercise requirements.
7. be able to demonstrate their ability to function as a team to solve lab exercise problems though successful completion of the exercises.
8. be able to program and operate a simple 2-3 axis CNC machine that performs according the published exercise requirements.
9. be able to understand and apply basic problem solving and design fundamentals as they relate to industrial problems including environmental and global concerns through class discussions, exams and lab exercises.

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

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted