52SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Electrical/Electromechanical Technology Program
Revision Date: August 21, 2023

I. CATALOG DESCRIPTION

Course Number:	ELEC2540
Course Title:	Industrial Automation Systems
Prerequisite(s):	ELEC1217 or ENER1210
Catalog Description:	Introduction to automation devices and their applications.
Credit Hours:	3
Class Hours:	30
Lab Hours:	45
Total Contact Hours:	75

II. COURSE OBJECTIVES: *Course will:*

A. Introduce the students to a variety of industrial automation devices and systems.
B. Enable the students to understand the major factors involved in industrial automation.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. Student Learning Outcomes: *Student will be able to:*
- **1.** Demonstrate appropriate safety measures while operating automation devices.
- **2.** Demonstrate the usage of proper PPE
- **3.** Predict the operation of basic automation systems
- **4.** Identify how automation devices would be used in a particular application.

B. General Learning Outcomes (GELOs)
- **1.** GELO #3: Critical Thinking & Problem Solving
  Outcome 1: Collect, identify, interpret, and analyze data
  Outcome 2: Synthesize information to arrive at reasoned solutions

IV. CONTENT/TOPICAL OUTLINE

A. Generic PLC architecture and Programing
- **1.** General PLC overview
- **2.** PLC Programming overview

B. Robotics
- **1.** Robotics introduction
- **2.** Robotics application

C. Variable Frequency Motor Drives
- **1.** VFD introduction
- **2.** VFD interfacing and programming

D. Servo Control Systems
- **1.** Servo system overview
- **2.** Servo system applications

V. INSTRUCTIONAL MATERIALS

A. Required Text(s): None

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1. Lecture
2. Lab
3. Homework/Quizzes
4. Utilizing online shell for documentation and homework/quizzes

VII. METHODS OF EVALUATION

A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
   1. Participation
   2. Daily assignments
   3. Written exams and/or quizzes
   4. Performance and observational assessment

VIII. SPECIFIC COURSE REQUIREMENTS

A. A minimum grade of D is required.
B. Credit by Examination: Credit for the course CANNOT be earned through Credit by Examination.