



# Syllabus

## SST 232 Cyberphysical Automation Control I

### General Information

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**Date**

November 12th, 2020

**Author**

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**Department**

Science and Technology

**Course Prefix**

SST

**Course Number**

232

**Course Title**

Cyberphysical Automation Control I

### Course Information

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**Credit Hours**

4

**Lecture Contact Hours**

3

**Lab Contact Hours**

2

**Other Contact Hours**

0

**Catalog Description**

In the first level of Cyberphysical Automation Control, students are introduced to control tools and techniques used in automation using microcontrollers, programmable logic controllers, and programmable automation controllers. Students will apply concepts and techniques to a team-based case study project to solve problems encountered in high technology businesses. The course prepares students for Automation Control II.

**Prerequisites**

MAT 152 or placement into Math Level 4, PHY 118 or TECH 122, TECH 123, and SST 174

**Co-requisites**

SST 231

**Grading Scheme**

Letter

### First Year Experience/Capstone Designation

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This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

### SUNY General Education

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This course is designated as satisfying a requirement in the following SUNY Gen Ed category

None

### FLCC Values

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#### Institutional Learning Outcomes Addressed by the Course

# Course Learning Outcomes

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## Course Learning Outcomes

1. Define the automation control requirements to specify tasks to be performed.
2. Simulate appropriate actuators and control hardware such as Microcontroller, PLC, or PAC using LabVIEW, Multisim and/or Ladder Logic software.
3. Construct automation control systems using appropriate hardware and test.
4. Integrate automation control solutions with documentation and presentation.

## Program Affiliation

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**This course is required as a core program course in the following program**

AAS Instrumentation and Control Technologies

## Outline of Topics Covered

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- I. Microcontroller
  - Hardware and software
- II. Programmable Logic Controller (PLC)
  - Hardware and software
  - Ladder Diagrams
- III. Programmable Automation Controller (PAC)
  - Hardware and software
- IV. Simulation of Control Hardware and Software
- V. Communication between Microcontroller, PLC, PAC and Computer
- VI. Simulation of Control Hardware and Software