



ASSOCIATE OF SCIENCE IN INDUSTRIAL AUTOMATION (AS)

Credit Status:

Credit

Program Award:

Associate of Science

Effective Term:

Fall 2019

Program Title

Associate of Science in Industrial Automation (AS)

Program Goal:

CTE

Secondary Program Goal

Catalog Description:

This degree prepares students for advanced level employment in the fields of industrial automation, industrial machine repair, industrial electrician, medical engineer, and food service machine technicians. Students completing this certificate will acquire employment skills in the area of electricity, motor controls and programmable motor drives, programmable logic controllers, human machine interface programming, and advanced instrumentation design and repair.

Career and Transfer Opportunities:

Career Opportunities

Upon successful completion of this degree, students will be prepared for employment in the following fields: Industrial Automation technician, industrial maintenance technician, industrial machine operator, industrial electrician, hospital engineer, and food service machine technician.

Program Outcomes:

Program Outcomes

- Design, and troubleshoot an advanced industrial automation electrical circuit with a multi-meter to industrial standards.
- Read a schematic, repair and maintain the mechanical, hydraulic, and pneumatic circuits found in a system of machines that comprise an automated process.
- Design, program, troubleshoot, and interface both programmable logic controllers (PLC), and variable frequency drives (VFD), and HMI's in an automated process.
- Weld with GTAW to perform purge welds in stainless tubing.
- Identify, interpret and make repairs on instrumentation sensors, pumps, and recording equipment.
- Possess the skill set to purchase the components of an automated system as needed.

Requirements

Code	Title	Units
GENERAL EDUCATION AND SUBJECT REQUIREMENTS		25
College of the Sequoias' Associate Degree General Education (COS-GE)		
+		
REQUIRED MAJOR COURSES		27
ITEC 276	Adv Prog Logic Controllers	3
ITEC 282	Fundamentals Process Control	4
ITEC 283	Instrumentation 1	4
ITEC 284	Instrumentation 2	4
ITEC 285	Data Transmission/Comm	4
ITEC 286	Human-Machine Interfacing	4
ITEC 287	Advanced Automation Project	4



+	ELECTIVES	8
	Select additional degree applicable courses numbered 1-299 to achieve 60 units.	
=	TOTAL	60

The Associate Degree requirements include completion of the:

1. Required major courses and restricted elective courses with a "C" or better grade in each course (required and restricted elective courses may be substituted with the approval of the Division Chair),
2. General Education requirements,
3. Subject requirements including PE, Health & Wellness, and American Institutions, and
4. A minimum of 60 units of degree applicable courses numbered 1-299, at least 12 of which must be taken in residence at College of the Sequoias, with a "C" (2.0) average (see Associate Degree Requirements (<http://catalog.cos.edu/associate-degree-requirements>) for additional details).

Units for Degree Major or Area of Emphasis (Min):

27

Units for Degree Major or Area of Emphasis (Max):

27

Total Units for Degree (Min):

60

Total Units for Degree (Max):

60

TOP Code:

094500 - * Industrial Systems Technology and Maintenance

Enrollment and Completer Projection:

Course Number	Course Title	Required / Electives	Annual Number of Sections (Yr 1)	Annual Enrollment Total (Yr 1)	Annual Number of Sections (Yr 2)	Annual Enrollment Total (Yr 2)
Itec 282	Fundamentals Process Control	Required	1	20	1	22
Itec 283	Instrumentation 1	Required	1	20	1	22
Itec 284	Instrumentation 2	Required	1	20	1	22
Itec 285	Data Transmission/Comm	Required	1	20	1	22
Itec 286	Human-Machine Interfacing	Required	1	20	1	22
Itec 287	Advanced Automation Project	Required	1	20	1	22
Itec 276	Advanced Programmable Logic Controllers	Required	1	20	1	22

Enrollment Projections:

22

Place of Program in Curriculum/Similar Programs:

The program is in the Industry and Technology Division, and is a unique A.S. degree program.

Similar Programs at other colleges in Service Area:

There are no equivalent programs in our service area.

**Master Planning:**

This program is in direct response to multiple local industry partner requests to immediately address higher skilled workforce needs. These occupations represent higher earnings than industrial mechanics and greater job stability. Implementation would support the COS Master Plan's Goal I, Increased enrollment, and Goal III, Academic Programs...that match...demands of ongoing changes in the workforce.

Curriculum Committee Approval Date:**Academic Senate Approval Date:****District Governing Board Approval Date:****State Program Control Number:**