

# A.A.S. Industrial Automation Engineering Technology

(2 Years)

## Program Objectives:

1. Solve technical problems typical of those encountered in the industrial automation discipline by using critical thinking skills, current technology, and practical use of trade equipment.
2. Work and communicate effectively in multidisciplinary teams in an industrial setting.
3. Demonstrate a commitment to lifelong learning and staying current with technical standards and codes.

## Student Outcomes:

1. Demonstrate safe work practices.
2. Work and communicate effectively in a diverse team environment.
3. Utilize test equipment to troubleshoot discipline related circuits.
4. Analyze single phase alternating current (AC), three phase AC, and direct current (DC) electrical circuits.
5. Create and interpret discipline-specific technical documentation.
6. Construct and troubleshoot circuits for motor controls and associated devices.
7. Design and troubleshoot control systems consisting of Programmable Logic controllers (PLC) / Programmable Automation Controllers (PAC) and associated Human Machine Interfaces (HMI).
8. Install and troubleshoot electrical AC and DC motors and variable frequency drives for operation within an architecture.
9. Utilize the fundamentals of networks and digital communications to troubleshoot distributed plant automation and Supervisory Control and Data Acquisition (SCADA) systems.
10. Configure and troubleshoot process instrumentation systems.
11. Troubleshoot and optimize process control loops.
12. Use the fundamentals of pump and valve operation to troubleshoot final element issues.
13. Demonstrate knowledge of motor monitoring equipment and switchgear.

Students must register concurrently for the lab course associated with each theory course.

## Program Admissions Requirements

Official test scores must be dated within one year of program admission.

Placement Test	Math
ALEKS	30

## General Education

The listing below includes program requirements that also fulfill General Education requirements.

Code	Title	Credits
Objective 1 - ENGL 1101 or ENGL 1102 <sup>1</sup>		3
Objective 2		3
Objective 3 - Choose MATH 1143, MATH 1147, MATH 1153, MATH 1160, MATH 1170, or MGT 2216 <sup>1</sup>		3-5
Objective 5 - PHYS 1101 & PHYS 1101L, CHEM 1100, or TGE 1160		4
Objective 6		3
<b>Total Credits</b>		<b>16-18</b>

<sup>1</sup> "P" courses are equivalent to the original course.

## Major Requirements

Code	Title	Credits
<b>Required Courses:</b>		
ESET 1100	Engineering Technology Orientation	1
ESET 1100L	Introduction to an Industrial Environment Laboratory	1
ESET 1101	Electrical Circuits I	4
ESET 1101L	Electrical Circuits I Laboratory	4
ESET 1140	Applied Technical Intermediate Algebra	5
IAET 2000	Fundamentals of Measurement and Control	2
IAET 2000L	Fundamentals of Measurement and Control Laboratory	1
IAET 2050	Introduction to Automation	3
IAET 2050L	Introduction to Automation Laboratory	4
ESET 1181	Introduction to Cyber-Physical Systems	3
IAET 2100	Motor Control Theory	4
IAET 2100L	Motor Control Laboratory	2
IAET 3000	PLC Programming Theory	2
IAET 3000L	PLC Programming Laboratory	4
IAET 3100	Process Measurement Theory	3
IAET 3100L	Process Measurement Laboratory	2
IAET 3150	Process Control Theory	4
IAET 3150L	Process Control Laboratory	3
IAET 3200	Industrial Networking	2
TGE 1159	Internship Strategies	1
<b>Choose one of the following Objective 1 courses:</b>		<b>3</b>
ENGL 1101	Writing and Rhetoric I	
ENGL 1102	Writing and Rhetoric II	
<b>Choose one of the following Objective 3 courses:</b>		<b>3-5</b>
MATH 1143	Precalculus I: Algebra	
MATH 1147	Precalculus	
MATH 1153	Statistical Reasoning	
MATH 1160	Survey of Calculus	

MATH 1170	Calculus I	
MGT 2216	Business Statistics	
<b>Choose one of the following Objective 5 courses:</b>		<b>4</b>
PHYS 1101 & 1101L	Elements of Physics and Elements of Physics Laboratory	
CHEM 1100	Concepts of Chemistry	
TGE 1160	Foundations of Physical Sciences in Applied Technology	
<b>Total Credits</b>		<b>65-67</b>

## Degree Totals

Code	Title	Credits
	Program Admission Requirements	0
	General Education	16-18
	Major Requirements (Required General Education credits removed)	55
	Free Electives	0
<b>Total Credits</b>		<b>71-73</b>