

Program Name: Industrial Technology AAS	Outcomes	INT 101 Introduction to Industrial Technology	INT 102 Introduction to PLC (Programmable Logic Controllers)	INT 103 PLC Applications	INT 104 Facilities Safety and Compliance	INT 105 Plumbing and Pipefitting	INT 106 Welding	INT 107 Introduction to HVAC
Outcome #1	Define Industrial Technology and describe its evolution.	Students will be able to describe the history of manufacturing.	Students will be able to explain and apply the concept of electrical ladder logic, its history, and its relationship to programmed PLC instruction.					
Outcome #2	Describe the technologies typically used in the industrial environment.		Students will be able to describe typical components of a Programmable Logic Controller.			Describe the key plumbing trade terms and definitions.	Recognize and understand common welding terminology	Understand HVAC/R system components and how they work
Outcome #3	Describe the management and maintenance organization of a typical industrial facility. Small, Medium, and Large.,	Identify roles, structures and organization of typical maintenance operation.			Identify codes and regulatory authorities and their governing agencies.			
Outcome #4	Describe the operation and maintenance of a typical Industrial Facilities infrastructure.	Explain the concepts and importance of proactive/predictive maintenance			Appropriately respond to agency inquiries and/or inspections.	Identify basic tools and materials of the plumbing trade. Demonstrate effective installation of common plumbing fixtures.		Understand refrigeration theory.
Outcome #5	Describe the operation and maintenance of typical Industrial Manufacturing Equipment.							
Outcome #6	Perform test procedures, startup, and maintenance, of a variety of mechanical systems systems.	Understand basic electrical load		Students will be able to design and program an intermediate automated industrial production line or process.			Torch cut, plasma cut, weld common metals using oxy-fuel, AC/DC arc, MIG and TIG welding equipment.	Understand SEER and COP energy ratings

<b>Outcome #7</b>	Perform data collection and evaluate industrial machinery.	Recognize and determine maintenance practices for common mechanical components	Students will be able to explain the concept of basic digital electronics and data manipulation					
<b>Outcome #8</b>	Maintain and troubleshoot industrial machinery and systems.	Recognize signs and causes of failure of power transmission components. Follow basic troubleshooting procedures for common mechanical systems and processes		Students will be able to explain ControlLogix Motion and Velocity Control		Assess basic plumbing trouble shooting skills.	Recognize signs and causes of weld joint failure	Understand evacuation, leak testing, and charging procedures
<b>Outcome #9</b>	Recognize standard safety and compliance procedures in the workplace.	Learn how to work safely in a team environment using standard OSHA specified procedures.		Students will be able to explain the concept of Safety Devices for Risk Reduction	Identify the function of each code/agency and the areas of facility operation over which they preside.	Develop safe and effective application skills from cognitive learning	Recognize and safely set up modern welding and cutting equipment Identify and correct weld shop safety problems	Understand EPA regulations and refrigerant recovery process

INT 110 Fundamentals of Electricity	INT 111 Pumps and Motors Operation and Maintenance	INT 113 Instrumentation and Process Control 1	INT 269 Internship	
Students will understand and be able to describe electron theory				
Students will be able to explain the operation and application of common components such as AC and DC motors, relays, switches, power supplies, overload devices and lighting.	Specify and install the correct pump for the application.	Identify the various types of instrumentation used in industry	X	
			X	
Students will be able to explain the concepts of current flow, AC/DC circuits and Ohms law.			X	
	Develop a preventive maintenance plan for a pump system	Specify and install instrumentation equipment required to accomplish needed results in a control system	X	
	Perform maintenance on a pump system	Set-up and test an installed instrumentation system Provide routine maintenance for an instrumentation system	X	

Students will be able to recognize and use common test equipment to evaluate electrical circuits.	Monitor and evaluate a typical pump system	Collect data from an instrumentation system	X	
Students will be able to recognize standard schematic symbols for common electrical and electronic components. Students will be able to troubleshoot basic electrical circuits using schematic diagrams	Repair a typical pump system Determine and correct the reason for a motor failure		X	
Students will be able to identify hazards of electrical circuits and be able to work safely	Trouble-shoot common instrumentation systems		X	