

Program Name: Alternative Energy Technology	Outcomes	AET 102 Introduction to Alternative Energy	AET 106 Photovoltaic Installation	AET 104 Geothermal Installation	AET 108 Wind Energy Installation	ELE 110 Fundamentals of Electricity	INT 107 Introduction to HVAC	INT 104 Facilities Safety and Compliance	INT 101 Introduction to Industrial Technology	INT 105 Plumbing and Pipefitting	INT 113 Instrumentation and Process Control 1	AET 269 Internship	AET 240 Capstone
Outcome #1	Distinguish between renewable and non-renewable energy sources.	Identify and differentiate alternative energy systems										X	X
Outcome #2	Identify energy inefficiencies in residential and business structures.	Understand energy efficiency in building design					Understand SEER and COP energy ratings		Explain the concepts and importance of proactive/predictive maintenance			X	X
Outcome #3	Understand specifications for solar energy systems.		Specify and install a typical photovoltaic system.					Identify the function of each code/agency and the areas of facility operation over which they reside			Specify and install instrumentation equipment required to accomplish needed results in a control system	X	X
Outcome #4	Understand specifications for geothermal energy systems.			Perform Geo-thermal installation and testing			Understand HVAC/R system components and how they work	Identify the function of each code/agency and the areas of facility operation over which they reside		Demonstrate effective installation of common plumbing fixtures	Specify and install instrumentation equipment required to accomplish needed results in a control system	X	X
Outcome #5	Understand specifications for wind energy systems.				Specify and install a typical wind energy system			Identify the function of each code/agency and the areas of facility operation over which they reside			Specify and install instrumentation equipment required to accomplish needed results in a control system	X	X
Outcome #6	Perform test procedures (start-up) of renewable energy systems.	Understand basic electrical load	Start up a photovoltaic system	Start up a geothermal energy system	Start up a wind energy system	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.						X	X
Outcome #7	Perform data collection and evaluate renewable energy systems.	Conduct and evaluate data collection from alternative energy systems	Collect and evaluate data from a solar photovoltaic system.	Collect and evaluate operational data	Collect and evaluate data from a wind energy system	Students will be able to recognize and use common test equipment to evaluate electrical circuits.			Recognize signs and causes of failure of power transmission components		Collect data from an instrumentation system Set-up and test an installed instrumentation system	X	X
Outcome #8	Maintain and troubleshoot renewable energy systems.	Understand basic electrical load	Maintain and troubleshoot a photovoltaic system	Identify problems and take corrective action. Identify routine and preventive maintenance requirements and perform such task.	Maintain and trouble-shoot a wind energy system.	Students will be able to trouble-shoot basic electrical circuits using schematic diagrams	Understand evacuation, leak testing, and charging procedures		Follow basic troubleshooting procedures for common mechanical systems and processes	Assess basic plumbing troubleshooting skills	Provide routine maintenance for an instrumentation system. Troubleshoot common instrumentation systems	X	X
Outcome #9	Recognize standard safety and compliance procedures in the workplace.		Work safely and efficiently	Follow safe work practices.	Work safely and efficiently	Students will be able to identify hazards of electrical circuits and be able to work safely		Identify codes and regulatory authorities and their governing agencies.	Learn how to work safely in a team environment using standard OSHA specified procedures	Develop safe and effective application skills from cognitive learning		X	X