

Introduction to Energy/Power

Career Cluster	STEM
Course Code	20101
Prerequisite(s)	None
Credit	.5
Program of Study and Sequence	Foundation courses – cluster course – Introduction to Energy/Power – specialized pathway course – capstone experience
Student Organization	None
Coordinating Work-Based Learning	Community/industry speakers
Industry Certifications	None
Dual Credit or Dual Enrollment	TBD
Teacher Certification	STEM Cluster Endorsement; Energy Pathway Endorsement; 7-12 Technology Education Endorsement
Resources	O*Net - http://www.onetonline.org Occupational Safety and Health Administration (OSHA)- www.osha.gov

Course Description:

The Introduction to Energy and Power course is designed to provide a basic understanding of the various types of energy, how energy is obtained and the relationships among work, energy, and power. Students will also study the history and effects of energy on society, alternative power, safety and ethics.

Program of Study Application

This is a pathway course in the STEM cluster Energy pathway. It is recommended that the course be preceded by a series of foundation courses and a cluster course in STEM, and followed by a more specialized pathway course such as Alternative Energy Systems and Electronics.

Course Standards

Indicator # EP 1 Analyze the history of energy/power sources		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Level 2: Skill/Content	EP 1.1 Examine the historical development of energy/power production	
Level 1: Recall	EP 1.2 Assess the impact of energy/power on the way people live and work	
Indicator #EP 2 Examine the relationships among work, energy, and power		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Level 1: Recall	EP 2.1 Define work, power, and energy	
Level 2: Skill/Concept	EP 2.2 Examine the relationship between power and energy sources	
Indicator # EP 3 Understand the transmission of energy and power		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Level 1: Recall	EP 3.1 Understand how a mechanical system operates	
Level 2: Skill/Concept	EP 3.2 Understand the types of simple machines	
Level 2: Skill/Concept	EP 3.3 Understand both liquid and gas forms of power transmission	
Level 1: Recall	EP 3.4 Understand the laws that govern electricity	

Indicator # EP 4 Understand alternative energy		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Level 2: Skill/Concept	EP 4.1 Understand the sources of alternative energy	
Level 3: Strategic Thinking	EP 4.2 Analyze the sources of alternative energy	
Indicator # EP 5 Implement safety with power technology		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Level 2: Skill/Concept	EP 5.1 Examine safety issues relating to mechanical systems	
Level 2: Skill/Concept	EP 5.2 Employ safety practices with fluids	
Level 1: Recall	EP 5.3 Identify fire classification and extinguishers	
Level 2: Skill/Concept	EP 5.4 Employ safety practices with electricity	
Indicator # EP 6 Understand scientific concepts for energy and power technology		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Level 1: Recall	EP 6.1 Understand how energy converts from one form to another	
Level 2: Skill/Concept	EP 6.2 Understand the categories of energy	
Level 3: Strategic Thinking	EP 6.3 Understand that an engine performing work exhausts thermal energy that cannot be retrieved to the surroundings	
Level 3: Strategic Thinking	EP 6.4 Understand which energy sources can be renewable and non-renewable	

Career Cluster: STEM

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Indicator # EP 7 Explore energy and power career options		
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>
Level 3: Strategic Thinking	EP 7.1 Research career opportunities in energy and power fields	