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## SECTION HEADING

### **RNEW 1300: Introduction to Traditional and Renewable Energy**

#### **Description**

Introduction to Traditional and Renewable Energy introduces students to various forms of energy stemming from both renewable and non-renewable sources. Students will study many sources of energy including solar thermal power, solar photovoltaics, bioenergy, hydroelectricity, tidal power, wind energy, wave energy, geothermal energy and fossil fuels. The First Law of Thermodynamics is studied along with conversion and efficiency of various forms of energy. The economics, potential and environmental impact will be covered for each topic.

#### **Credits**

3

#### **Prerequisite**

None

#### **Corequisite**

None

#### **Topics to be Covered**

1. Force, energy and power relationships
2. Energy conservation: The First Law of Thermodynamics
3. Conversion and efficiency
4. Solar Thermal Energy
5. Solar Photovoltaics
6. Bioenergy
7. Hydroelectricity
8. Tidal Power
9. Wind Energy
10. Wave Energy
11. Geothermal Energy
12. Natural Gas
13. Coal
14. Energy integration
15. Career opportunities/exploration

#### **Learning Outcomes**

1. Discuss fundamentals and basic principles of operating and maintaining wind, solar, and fossil fuel power generation and distribution facilities.
2. Discuss basic principles of operating and maintaining biofuel plants.
3. Discuss basic principles of operating and maintaining natural gas pipelines.
4. Identify career opportunities as they relate to the various energy industries.
5. Identify sources used to provide energy in today's society.
6. Identify major components of various energy systems and the technologies associated with them.
7. Discuss economic, potential impact and environmental impact of various energy systems.
8. Discuss the issues relating to energy integration.

#### **Credit Details**

Lecture: 3

Lab: 0

OJT: 0

