



9175
CURRENT TOPICS IN
SUSTAINABLE ENERGY (12DA)

40S/40E/40M

A Sustainable Energy Course

9175: CURRENT TOPICS IN SUSTAINABLE ENERGY (12DA) 40S/40E/40M

Course Description

This course gives students the opportunity to investigate current topics, issues, and trends in sustainable energy. It is intended that students will determine the topics, issues, and trends they find engaging and relevant.

Goal 1: Describe **health and safety** concerns associated with current topics, issues, and trends in sustainable energy, along with potential solutions.

GLO 1.1: Describe **health and safety** concerns associated with current topics, issues, and trends in sustainable energy, along with potential solutions.

SLO 12Da.1.1.1: Describe health and safety concerns associated with current topics, issues, and trends in sustainable energy.

SLO 12Da.1.1.2: Describe potential solutions to health and safety concerns associated with current topics, issues, and trends in sustainable energy.

Goal 2: Demonstrate the knowledge, skills, and attitudes required to **identify, investigate, and report** on current topics, issues, and trends in sustainable energy, and demonstrate the ability to integrate knowledge, skills, and attitudes from a variety of disciplines to develop potential **solutions**.

GLO 2.1: Demonstrate the knowledge, skills, and attitudes required to **identify, investigate, and report** on current topics, issues, and trends in sustainable energy, and demonstrate the ability to integrate knowledge, skills, and attitudes from a variety of disciplines to develop potential **solutions**.

SLO 12Da.2.1.1: Demonstrate the ability to identify current topics, issues, and trends in sustainable energy.

SLO 12Da.2.1.2: Demonstrate the ability to investigate current topics, issues, and trends in sustainable energy.

SLO 12Da.2.1.3: Demonstrate the ability to report on current topics, issues, and trends in sustainable energy.

SLO 12Da.2.1.4: Demonstrate the ability to integrate knowledge, skills, and attitudes from a variety of disciplines to develop potential solutions to issues in sustainable energy.

Goal 3: Demonstrate the ability to describe the **interdependence** of sustainable energy systems, science, technology, society, government, the economy, and the environment.

GLO 3.1: Demonstrate the ability to describe the **interdependence** of sustainable energy systems, science, technology, society, government, the economy, and the environment.

SLO 12Da.3.1.1: Describe scientific and technological developments related to sustainable energy, past and present, and describe their impact on individuals, societies, the economy, and the environment, both locally and globally.

SLO 12Da.3.1.2: Demonstrate the ability to describe the interdependence of sustainable energy systems, science, technology, society, government, the economy, and the environment.

Goal 4: Demonstrate an awareness of the **differences of scale** between various sizes of sustainable energy systems.

GLO 4.1: Demonstrate an awareness of the **differences of scale** between various sizes of sustainable energy systems.

SLO 12Da.4.1.1: Demonstrate an awareness of the differences related to the planning, installation, and maintenance of sustainable energy systems of various scales (e.g., small-scale individual consumer systems versus large-scale industrial systems; small community systems versus larger regional systems).

Goal 5: Demonstrate appropriate **inquiry, problem-solving, critical thinking, and decision-making skills and attitudes** for exploring current topics, issues, and trends in sustainable energy.

GLO 5.1: Demonstrate appropriate **inquiry, problem-solving, critical thinking, and decision-making skills and attitudes** for exploring issues and problems in sustainable energy.

- SLO 12Da.5.1.1: Demonstrate the ability to use appropriate inquiry skills when seeking answers to topics, issues, and trends.
- SLO 12Da.5.1.2: Demonstrate the ability to use appropriate problem-solving skills when seeking solutions to topics, issues, and trends.
- SLO 12Da.5.1.3: Demonstrate the ability to use appropriate critical thinking and decision-making skills and attitudes when choosing a course of action.
- SLO 12Da.5.1.4: Demonstrate the ability to recommend an alternative or to identify a position, and provide justification for it.
- SLO 12Da.5.1.5: Demonstrate the ability to reflect on the decision-making process.

Goal 6: Demonstrate **cross-curricular knowledge, skills, and attitudes** as they relate to sustainable energy.

GLO 6.1: Demonstrate the **mathematical** skills and attitudes required to evaluate topics, issues, and trends and to identify potential solutions.

- SLO 12Da.6.1.1: Evaluate the relevance, reliability, and adequacy of data (e.g., discrepancies in data, sources of systemic error, precision versus accuracy) and the methods used to collect data.
 - SLO 12Da.6.1.2: Interpret patterns and trends in data, and infer and explain relationships (e.g., line of best fit, regression equations, statistical analysis, modes of representation—visual, numerical, graphical, symbolical).
 - SLO 12Da.6.1.3: Analyze data or observations in order to draw conclusions consistent with the available results of an investigation, and identify the implications of these results (e.g., cause and effect relationships, alternative explanations, support for or rejection of a hypothesis or a prediction statement).
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GLO 6.2: Demonstrate the **language arts** knowledge and skills required to evaluate topics, issues, and trends and to identify potential solutions.

SLO 12Da.6.2.1: Demonstrate the ability to evaluate gathered information (e.g., for scientific accuracy, reliability, currency, relevance, balance of perspectives, bias) to determine its usefulness for identified needs.

SLO 12Da.6.2.2: Demonstrate the ability to quote from, cite, and reference sources.

SLO 12Da.6.2.3: Compare diverse perspectives and interpretations in the media (e.g., how media treat issues or problems in sustainable energy).

GLO 6.3: Demonstrate the **scientific** skills and attitudes required to evaluate issues and problems and to identify potential solutions.

SLO 12Da.6.3.1: Demonstrate the appropriate scientific skills and attitudes required to evaluate issues and problems and to identify potential solutions.

Goal 7: Demonstrate an understanding of the **ethical and legal aspects** of current topics, issues, and trends in sustainable energy, and their potential solutions.

GLO 7.1: Demonstrate an understanding of **ethical** aspects of current topics, issues, and trends in sustainable energy, and their potential solutions.

SLO 12Da.7.1.1: Demonstrate an understanding of ethical aspects of current topics, issues, and trends in sustainable energy, and their potential solutions.

GLO 7.2: Recognize that decisions reflect **values** and consider own and others' values when making a decision.

SLO 12Da.7.2.1: Recognize that decisions reflect values and consider own and others' values when making a decision.

GLO 7.3: Demonstrate an understanding of **legal** aspects of current topics, issues, and trends in sustainable energy, and their potential solutions.

SLO 12Da.7.3.1: Demonstrate an understanding of legal aspects of current topics, issues, and trends in sustainable energy, and their potential solutions.

Goal 8: Demonstrate an awareness of **cultural proficiency** as it applies to current topics, issues, and trends in sustainable energy, and their potential solutions.

GLO 8.1: Demonstrate an awareness of **cultural proficiency** as it applies to current topics, issues, and trends in sustainable energy, and their potential solutions.

SLO 12Da.8.1.1: Demonstrate an awareness of the relationship between culture and topics, issues, and trends in sustainable energy.

Goal 9: Demonstrate an awareness of the **factors that influence research** in sustainable energy.

GLO 9.1: Demonstrate an awareness of the **factors that influence research** in sustainable energy.

SLO 12Da.9.1.1: Demonstrate an awareness of how research programs in sustainable energy are supported, funded, and influenced by the pressures of priority, merit, and foreseeable effects in the larger society.

Goal 10: Analyze a controversial **issue** that involves the effect of an energy system on a **community**.

GLO 10.1: Analyze a controversial **issue** that involves the effect of an energy system on a **community**.

SLO 12Da.10.1.1: Analyze a controversial issue that involves the effect of an energy system on a community (e.g., a community opposed to the installation of electrical transmission lines or a nuclear power plant).

Goal 11: Demonstrate an awareness of the use of **peer reviews and academic journals** in exploring current topics, issues, and trends in sustainable energy.

GLO 11.1: Demonstrate an awareness of the use of **peer reviews and academic journals** in exploring current topics, issues, and trends in sustainable energy.

SLO 12Da.11.1.1: Demonstrate the ability to identify an article in an academic journal that deals with topics, issues, and trends in sustainable energy.

SLO 12Da.11.1.2: Demonstrate the ability to reflect on an article from an academic journal that deals with topics, issues, and trends in sustainable energy.
