I²CNER special lecture series

Students, post-docs, and researchers from all backgrounds, disciplines, and majors are welcome

Global Energy Overview

Tuesdays
10:30 a.m.-
11:30 a.m.

Venue: I²CNER Hall C

I²CNER bldg. #1

week 1: Feb. 7, 2023

Energy Basic Concepts and History
World Energy Resources and Sustainability

week 2: Feb. 14

Fossil Fuels: Coal and Oil & Gas

- Exploration, extraction, and production
- Use as fuel and power
- Issues and challenges

week 3: Feb. 21

Nuclear Energy

- Uranium resources
- Nuclear power generation and small modular reactors
- Challenges and opportunities

week 4: Feb. 28

Renewable Energy

- Renewable energy technologies: wind, wave/tidal, hydropower, solar, geothermal
- Challenges and opportunities

week 5: Mar. 7

Electricity

- Generation, demand, transmission. and distribution
- Levelized cost of electricity and other metrics
- Costs and impacts of emissions

week 6: Mar. 14

Transportation Energy

- Conventional fuels, natural gas, biofuels
- Electric and hydrogen fuel vehicles

Energy Storage

- Mechanical storage, electric and chemical storage

Instructor

Jill Engel-Cox

Director of the Joint Institute for Strategic Energy Analysis (JISEA),
U.S. National Renewable Energy Laboratory (NREL)

Jill Engel-Cox is Director of the Joint Institute for Strategic Energy Analysis (JISEA) at the U.S. National Renewable Energy Laboratory. Over her 30-year career, Dr. Engel-Cox has been an engineer, researcher, program manager, and strategic planner for a diverse suite of renewable energy, clean technology, and environmental programs in the United States, Asia, and Middle East. In the past decade, she has led international strategic planning and technology assessments for renewable energy and environmental sustainability research programs, working extensively in Malaysia and Saudi Arabia. She also teaches an course in energy issues for the University of Colorado Denver Global Energy Management program and industrial processes and environmental communications courses at Johns Hopkins University Engineering for Professionals Program.

Topic

These overview lectures will introduce the global energy industry, its stakeholders, technologies, and resources. The focus will be on the major economic, technological, environmental, and social factors that affect the energy industry. Topics will include: fossil, nuclear, and renewable energy; electrical generation; transportation fuels; and energy storage.

Students and Objective

Students, post-docs, and researchers from all backgrounds, disciplines, and majors are welcome. The learning objective is for students across disciplines to build their general knowledge about energy resources and technologies. No course credit will be given but the lectures and discussion will aim to support diverse learning, including technical, social science, communications, and business studies.

Format

The overview will be conducted as a series of weekly 1-hour lectures with opportunity for discussion. Students can attend all or individual lectures based on their interest. The instructor will encourage students to ask questions and share their experiences during the lectures and will be available after each lecture for optional small discussions.

Contact

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- ✓ *Lecture language: English*
- ✓ *Admission: Free*
- ✓ *Registration required*

Registration