

SEDV 601: ENERGY SYSTEMS I: NON-RENEWABLE ENERGY

Explore the interaction between non-renewable resources (petroleum, natural gas, coal, nuclear, thermal stations) and the environment. Consider the technical, environmental, social and policy aspects of conventional and unconventional non-renewable energy extraction, transportation and utilization.

Instructor:

TBD

Course Objective:

SEDV 601 explores the interactions between non-renewable energy resources and the environment; exploration, production and exploitation of energy resources, including conventional and unconventional oil and gas, coal, nuclear, and coal-bed methane. The technical, economic, environmental and policy aspects of production, transportation, and use of non-renewable energy will also be covered.

The goals of the course are to:

- Understand the concept of energy transitions and explain the role of non-renewable energy in today's energy mix.
- Understand the methods of locating, extracting, processing and refining these resources.
- Analyze the environmental, social and policy implications of non-renewable energy extraction, transportation and use.
- Apply their knowledge to a thorough investigation of a current or future energy project.

Topics Covered (Selected):

- Energy transitions through history
- Principles of Energy Production
- Coal, Oil and Natural Gas (conventional, unconventional and heavy oil)
- Nuclear Power
- Electrical Power Generation & Transmission
- Transportation and Use of Energy
- Environmental and Social Impacts
- North American Energy Policy
- Advancements in Technology