



Course Code OGEE-531DL	Course Title Energy Efficiency	ECTS Credits 7.5
Department Engineering	Semester Fall, Spring	Prerequisites None
Type of Course Elective	Field Oil, Gas and Energy Engineering	Language of Instruction English
Level of Course 2 nd Cycle	Year of Study 1 st /2 nd	Lecturer(s) Dr Constantinos Hadjistassou
Mode of Delivery Distance Learning	Work Placement N/A	Co-requisites None

Objectives of the Course:

The main objectives of the course are to:

- Introduce students to energy efficiency
- Provide solid knowledge on the fundamentals and principles of energy used in Buildings, Transportation, Industry and Agriculture
- Develop the tools for quantitative and qualitative performance analysis of energy demand scenarios
- Provide solid technical knowledge and skills related to the policies to reduce the demand by improving the efficiency of the systems

Learning Outcomes:

After completion of the course students are expected to:

- Explain the main characteristics of energy efficiency
- Analyze and evaluate the fundamentals and principles of energy used in Buildings, Transportation, Industry and Agriculture
- Evaluate the scenarios of energy demand
- Perform calculations for the design and sizing of policies to reduce the demand by improving the energy efficiency

Course Contents:

- Prospective Climatic Change, Impacts and Constraints
- Energy Basics, Usage Patterns and Related Greenhouse Gas & Pollutant Emissions
- Generation of Electricity from Fossil Fuels
- Energy Use in Buildings
- Transportation Energy Use
- Industrial Energy Use
- Agriculture and Food System Energy Use
- Municipal Services

- Community Integrated Energy Systems
- Energy Demand Scenarios
- Policies to Reduce the Demand of Energy

Learning Activities and Teaching Methods:

Lectures, Online Questions, Projects, Discussion

Assessment Methods:

Assignments, Online Exercises, Final Exam

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
L.D. Dunny Harvey	Energy Efficiency and the Demand for Energy Services	Earthscan LTD	2010	

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
C. Ocic	Oil Refineries in the 21st Century: Energy Efficient, Cost Effective, Environmentally Benign	Wiley - VCH	2005	
F.P. Sioshansi	Energy Efficiency: Towards the End of Demand Growth	Elsevier/AP	2013	