



Philadelphia University

Faculty of Engineering - Department of Renewable Energy
Engineering

First Semester 2024/2025

Course Details:

Title: Energy Economics and management (611312)

Prerequisite: Energy Conversion and efficiency (611311)

Credit Hours: 3 credit hours (16 weeks per semester, approximately 45 contact hours)

Textbook: Energy Economics: Concepts, Issues, Markets and Governance by
Bhattacharyya, Subhes C.

References: Energy Finance and Economics: Analysis and Valuation, Risk Management,
and the Future of Energy by Betty Simkins and Russell Simkins.

Course Description: The course is a requirement for level 4 renewable energy engineering
students. It introduces design and analysis of wind energy systems.

Website: <http://www.philadelphia.edu.jo/academics/ayasin>

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Instructor: **Office:** Engineering Building, Room 711, Ext: 2337
Office hours: Sat, Mon.: 11:00-12:00 and 13:00-14:00
Sun, Tues.: 11:00-12:00 and 14:00-15:00

Course Outlines:

Week	Topic
1, 2	Introduction to Energy Economics, Energy Demand Analysis and Forecasting
3,4	Understanding and Analyzing Energy Demand
5,6	Economic Analysis of Energy investments
7,8,9	The Economics of Renewable Energy Supply
10, 11	Energy Demand Management
12,13	Integrated Analysis of Energy Systems
14,15	Energy Demand Forecasting
16	Review of the total course

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should have:

1.	The ability to know the concepts related to the energy systems and presented the energy accounting principles in simple terms	[K4, C4]
2.	The ability to know the energy conversion issues and treatment of some special elements of the energy data, including that of traditional energies.	[K4]
3.	The ability to know the concept of economic analysis of projects and has explained the differences between the financial analysis and the economic analysis.	[K4]
4.	The achievement of the concepts related to cost and benefits valuation and presented the commonly used indicators to present the results. Ability to know the advantages and disadvantages of each one of the technologies including the processing and make the comparison between them.	[K4, C4]
5.	The achievement of the basic demand related-related concepts and ideas used in energy economics.	[K4,C4]
6.	The ability in the achievement of the application of simple economic principles in analyzing contemporary energy issues.	[K4]
7.	The ability to know the energy markets with specific emphasis on non-conventional sources of energy (oil, gas and coal).	[K4, C4]
8.	The ability to know the environmental aspects of energy use, and regulatory and governance issues.	[C4]

Assessment Guidance:

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams: The students will be subjected to one scheduled written exams, mid exam during the semester.

Quizzes: (2) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

Homework and projects: Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).

Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.

Final Exam: The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

Grading policy:

Mid Exam	30%
Homework, quizzes, and participation	30%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 45 credit hours. Total absence hours from classes and tutorials must not exceed 15% of the total credit hours. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the course. If the excuse is approved by the deanship the student will be considered withdrawn from the course.

October, 2024