

Zarqa University

Faculty of Engineering

Department: Energy

Course title: Energy Economics and  
Management



Prerequisite:

Instructor: Dr Aktham Yasin

Lecture's time: Sun-Tue Th.

Semester: 1

Office Hours: 11:00 – 12:00, 9:30-  
11:00

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### Course description:

#### Energy Economics and Management 0906440

This course will introduce range arguments such as: energy management principles; energy conversion; energy auditing; analysis; formulation of energy management options; economic evaluation, implementation & control; energy conservation techniques-conservation in energy intensive industries; steam generation, distribution systems, and electrical demands; integrated resource planning; demand-side management; cogeneration; total energy schemes; thermal insulation; energy storage; economic evaluation of conservation technologies; analysis of typical applications. Application of the principles and practices of energy management to improve energy efficiency, sustainability, and renewable resource usage.

#### Course learning out comes (CLOs):

- 1- Ability to know the concepts related to the energy systems and presented the energy accounting principles in simple terms
- 2- Ability to know the energy conversion issues and treatment of some special elements of the energy data, including that of traditional energies.
- 3- Ability to know the concept of economic analysis of projects and has explained the differences between the financial analysis and the economic analysis.
- 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.
- 5- The achievement of the basic demand related-related concepts and ideas used in energy economics.
- 6- The ability in the achievement of the application of simple economic principles in analyzing contemporary energy issues.
- 7- The ability to know the energy markets with specific emphasis on non conventional sources of energy (oil, gas and coal).
- 8- Ability to know the environmental aspects of energy use, and regulatory and governance issues.



**Course structures:**

| #Topic | Topic  | Ref. in the Text | Lect. | CLO | Teaching Procedure                     |
|--------|--|------------------|-------|-----|--|
| 1      | Introduction to Energy Economics, Energy Demand Analysis and Forecasting | CH. 1            | 6 Hrs | 1,2 | Data show lecture and mention examples |
| 2      | Understanding and Analyzing Energy Demand                                | CH. 2            | 6 Hrs | 3   | Data show lecture and mention examples |
| 3      | Economic Analysis of Energy investments                                  | CH. 3            | 6 Hrs | 4   | Data show lecture and mention examples |
| 4      | The Economics of Renewable Energy Supply                                 | CH. 4            | 6 Hrs | 5   | Data show lecture and mention examples |
| 5      | Energy Demand Management   | CH. 5            | 6 Hrs | 6   | Data show lecture and mention examples |
| 6      | Integrated Analysis of Energy Systems                                    | CH. 6            | 6 Hrs | 7   | Data show lecture and mention examples |
| 7      | Energy Demand Forecasting  | CH. 7            | 6 Hrs | 8   | Data show lecture and mention examples |
| 8      | Review of the total course   |                  | 3     |     |  |

**Textbook and References:**

- Energy economics: concepts, issues, markets and governance, Subhes C. Bhattacharyya, Springer-Veriag London Limited, 2011

**Assessment Methods:**

| Methods    | Grade | Date |
|------------|-------|------|
| Test 1     | 20    |      |
| Test 2     | 20    |      |
| Quizes     | 10    |      |
| Final Exam | 50    |      |

