

Zarqa University

Faculty of Engineering

Department: Energy

Course title: energy And Environment



Prerequisite:

Instructor: Dr Aktham Yasin

Lecture's time: Sun-Mon-Tue

Semester: 2

Office Hours: 11-12

Course description:

Energy & Environment 906431

Energy System and Environment; conventional and renewable energy sources. The Impact of RE in reducing CO2 emissions. Consequences of pollution growth; Air, Water, soil, thermal, noise pollution – cause and effect; Causes of global, regional and local climate change; Pollution control methods, Environmental laws on pollution control. Sustainability: global warming; Green House Gas Emissions, impacts, mitigation; Sustainability, Externalities; Effect of future Energy Systems; The effect of Clean energy technologies.

Aims of the course:

1. Teaching of Renewable Energy & non Renewable Energy and the comparison between them
2. Teaching of Air Pollution and describe and mention the main cause of the air pollution
3. Teaching of Global Warming and Thermal Pollution and the Methods to remove the causes of the Global Warming and reduce it.
4. Teaching Fossil Fuels and discuss the types of Fossil Fuels and comparison them with the substitutes of renewable Energy.
5. Global Energy use and Supply by talking 6 discussing the principle sources of energy in present societies.

Intended Learning Outcomes (ILOs):

- 1- Ability to know the sources of energy
- 2- Ability to know the types of energy
- 3- Ability to know the different between Renewable Energy and non Renewable Energy and make the comparison between them
- 4- Ability to know the main pollutants of the atmosphere and the methods to remove them from the atmosphere
- 5- Ability to know the advantages and disadvantages of Non Renewable Energy and Renewable Energy and make the comparison between them.
- 6- Ability to know how to make the choice and the decision about which types of energy to bring it in consideration and how you develop it.
- 7- Ability on how to save the atmosphere of the earth and keep suitable to live in a healthy environment



Course structures:

| Week | C. Hrs | ILOs | Topics | Teaching Procedure | Assessment methods |
|----------|--------|------|--|---|--|
| 1,2,3 | 9 | | Introduction to Energy & Environment | Talking in general about the present energy and renewable energy and talking and discussing the reasons which pushed the human being to start looking for the substitute of the present energy which coming from the Fossil Fuels | Using power point and mention examples |
| 4,5,6 | 9 | | Fossil and Fuels Sources in nature | Mention on the main sources of Fossil Fuels and their usage | Using power point and mention examples |
| 7,8,9 | 9 | | Air Pollution | Talking and discussing the main pollutants of the air and their origins | Using power point and mention examples |
| 10,11,12 | 9 | | Global Warming and Thermal Pollution | Talking and discussing the main causes of Global Warming and its effects on the atmosphere (Possible Impacts, Ecological Effects of thermal Pollution, Cooling Towers and Ponds, Using Waste Heat. | Using power point and mention examples |
| 13,14,15 | 9 | | Biomass and Recovering Energy | Talking about the sources of biomass and how we can recover energy and what are the advantages of using renewable energy ad its effects and impacts on the environment. | Using power point and mention examples |
| 16 | | | Review of the all the course and discuss it with the students | | |

References:

- Energy and the environment : scientific and technological principles, Roger Hinrichs , Merlin Kelinback.
- Energy, Environment and the climate change , Hodgson, peter
- Energy and Environment, New York: JohnWiley and Sons,2006

Assessment Methods:

| Methods | Grade | Date |
|---|-------|------------------|
| Exams : 1 st , 2 nd | 20 | 9/4 , 21/5/2017 |
| Quiz : 1 st , 2 nd | 5 | 23/5 , 25/5/2017 |
| Final | 50 | 6/6/2017 |
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ZU/QP10F003

الإصدار: 01

تاريخ الإصدار: 24 حزيران 2015