Benha University

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Energy Storage & Transmission

By

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Lecture (1)

09 – 02 - 2020

Course Code: ESE506

Prerequisites: ESE403 & ESE501

Study Hours: 3 Cr. hrs.

= [2 Lect. + 2 Tut]

Assessment:

Final Exam: 40%.

Midterm: 30%.

Midterm: 20%.

Year Work & Quizzes: 10%.

Textbook:

Energy Storage

Hadi Saadat, Power System Analysis

Syllabus

1. • Introduction to energy resources.
2. • Energy Conversion.
3. • Transmission & Distribution & Consumption.
4. • Units of Energy and Power and Important Constants.
6. • Conservation of Energy and energy conversion techniques.
7. • Electricity generation, transmission and storgae.

Cont.

8	• Energy consumption; Domestic and industrial.
9	• Case studies.
10	• Introduction to green energy policy and climate change mitigation.
11	• Renewable energy systems; wind power, hydro power, solar, biomass, and biofuel, geothermal.
12	• Case studies of major installations.
13	• Economics and politics of renewable energy systems.
14	• Structure, design, efficiency of electrical transmission grids.

Cont.

15

- Power electronics and their application in energy storage and conversion.

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- Integrated approach for the storage and transmission of energy.

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- Efficiency trade-off analysis of such systems.