



Benha University

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Energy Storage & Transmission

By

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Lecture (1)





4

Course Code: ESE506

Prerequisites: ESE403 & ESE501

Study Hours: 3 Cr. hrs.

= [2 Lect. + 2 Tut]





5

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 storage.

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.

16

- Integrated approach for the storage and transmission of energy.

17

- Efficiency trade-off analysis of such systems.