

Electric Power System Engineering (I)

2 units (required selection (E))

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Target To help the students understand the fundamentals of electric power system and to provide the students with the fundamental skills required to analyze the power system.

Outline This course presents the fundamentals of electric power system, the principle to control electric power, and the components of power system.

Keyword *Transmission system, Distribution System, Transmission system, Active power, Reactive Power*

Fundamental Lecture “[Electrical Circuit Theory \(I\) and Exercise](#)”(1.0), “[Electrical Circuit Theory \(II\) and Exercise](#)”(1.0), “[Fundamentals of Energy Engineering](#)”(1.0)

Relational Lecture “[Network Analysis](#)”(0.5), “[Applications of Electrical Machines](#)”(0.5)

Requirement Prerequisites: Electrical Circuit Theory (1) and Exercise, Electrical Circuit Theory(2) and Exercise, Fundamentals of Energy Engineering

Goal

1. To understand the fundamentals of electric power system.
2. To understand the components of electric power system.
3. To understand the control of power and frequency.

Schedule

1. Introduction of Electric Power System- Historical-
2. Renewable Energy Sources
3. Energy Storage and Environmental Aspects of Electrical Energy
4. Overview of Transmission and Distribution Systems
5. Three-Phase Systems
6. Reactive Power
7. Midterm Examination (Evaluation of Achievement 1)
8. The Per-Unit System
9. Power Transfer and Reactive Power
10. Overview of Components of Power System
11. Automatic Voltage Regulators
12. Overhead Lines and Representation of Lines
13. Transformers
14. Control of Power and Frequency

15. Final Examination (Evaluation of Achievement 2 and 3)

16. Explanation for the Answers to Final Examination

Evaluation Criteria Assignments 20%, Midterm examination 30%, Final examination 50%. Totally 60% is required. Attendance and participation in class are essential.

Relation to Goal (D)30%, (E)70%

Textbook B.M.Weedy and B.J.Cory, Electric Power System, John Wiley & Sons

Contents <http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216225>

Student Able to be taken by only specified class(es)

Contact

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Note

- ◇ Language: English
- ◇ Self-study: Preparation 2 hours and review 2 hours for every class (2hours) .