

Electric Power System Engineering (II)

2 units (selection)

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Target To help the students understand the operation of electric power system and to provide the students with the skills to analyze the problems generated in the operation of power system based on Electric Power System Engineering (1).

Outline This course presents the operation of electric power system and the principle to control of voltage and reactive power, the fault analysis, overvoltages, and insulation requirements.

Keyword *Control of Voltage and Reactive Power, Load Flows, Fault Analysis, System Stability, Insulation Requirements*

Fundamental Lecture “**Fundamentals of Energy Engineering**”(0.5), “**Electric Power System Engineering (I)**”(1.0)

Relational Lecture “**Network Analysis**”(0.5), “**Electrical Machine Dynamics and Controls**”(0.5), “**Electrical Measurement and Instrumentation**”(0.5)

Requirement Prerequisites: Fundamentals of Energy Engineering, Electric Power System Engineering(1)

Goal

1. To understand the operation of electric power system
2. To understand the control of voltage and reactive power
3. To understand the fault analysis and system stability.
4. To understand the overvoltages and insulation requirements

Schedule

1. Introduction of Control of Voltage and Reactive Power
2. Methods of Voltage Control
3. Tap-Changing Transformers
4. Introduction of Load Flows
5. Introduction of Load Flows
6. Computation of Power Flows in Network
7. Midterm Examination (evaluation of achievement 1 and 2)
8. Introduction of Complex Flows in Large Systems
9. Example of Complex Flows in Large Systems
10. Introduction of Fault Analysis
11. Method of Symmetrical Components
12. Types of Fault
13. Power in Symmetrical Components

14. Steady-State Stability and Transient Stability, Overvoltages and Insulation Requirements

15. Final Examination (evaluation of achievement 2,3 and 4)

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 Systems, Fourth Edition, John Wiley & Sons

Contents <http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216226>

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) .