

Syllabus

Electric Power System Engineering

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|--------------------------|--------------------------------------|------------|------------------------------------|------------------|------------------|------------------|
| Course Name | Course type (credit/hours) | | 전선(3/3) | | Course code | |
| | Target students Division/major/grade | | 에너지시스템 학과/6학년 | | Opening semester | 2018년 1학기 |
| | Class time and classroom | | 월5(전101) 월6(전101) 월7(전101)(전101) | | | |
| Reference to this course | Related basic courses | | Electromagnetics, Circuit Analysis | | | |
| | Recommended concurrent courses | | Energy Process Engineering | | | |
| | Related advanced courses | | | | | |
| Instructor | Name (title/division) | | 정재성 (조교수/에너지시스템 학과) | | | |
| | Office Room Number | 에너지센터 210호 | Office phone Number | 2695 | e-mail | jjung@ajou.ac.kr |
| | Office hours | | | Homepage address | | |
| Teaching Assistant | Name (title/division) | | | | | |
| | Office Room Number | | Office phone Number | | e-mail | |

1. Introduction

Electric power system is the engineering study of transferring the power from power plant to end-user through generation, transmission, distribution, and utilization of electric power. The course is dealing with modern power system operational and control problems and their solution techniques. The topics covered include: transmission line modeling, transformer modeling, generator modeling, admittance model and network calculation, power flow, and etc.

2. Course Objectives

3. Class types and activities

lecture and discussion

4. Teaching Method

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|------------------------|
| lecture and discussion |
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5. Knowledge and ability required for taking this course

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6. Method of Evaluation

| Evaluation Item | The Number of Times | Evaluation Proportion | Remarks |
|-----------------|---------------------|-----------------------|---------|
| Attendance | | 20 | |
| midterm exam | | 30 | |
| final exam | | 50 | |
| quiz | | | |
| presentation | | | |
| discussion | | | |
| homework | | | |
| etc | | | |

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7. Textbooks

| Main/Sub | Title | Writer | Publisher | Publication year |
|----------|------------------------|------------------|-----------------------|------------------|
| 주교재 | Power Systems Analysis | John Grainger | McGraw-Hill Education | 2015 |
| 부교재 | Power Systems Analysis | Arthur R. Bergen | Pearson | 1999 |

8. Lecture Schedule

| Week | Lecture contents | Lesson type | Remark |
|------|------------------------------------------------------|-------------|--------|
| 1 | Introduction of power system engineering | | |
| 2 | The basic theory of power system | | |
| 3 | Series Impedance of Transmission Lines | | |
| 4 | Capacitance of Transmission Lines | | |
| 5 | Transformer modeling and the per-unit system | | |
| 6 | Current and Voltage Relations on a Transmission Line | | |
| 7 | The Admittance Model and Network Calculation | | |
| 8 | Term Project | | |
| 9 | The Admittance Model and Network Calculation | | |
| 10 | Power Flow Solution | | |
| 11 | Power Flow Solution | | |
| 12 | Power Flow Solution | | |
| 13 | Power Flow Solution | | |
| 14 | Power Flow Solution | | |
| 15 | Power Flow Solution | | |
| 16 | Final Exam | | |

9. Others

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