

EE280 - Electrical Machines

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Overview

Syllabus

AC Power Measurement

Magnetic Circuits

Transformers

Electromechanical Energy Conversion

DC Machines

Induction Machines

Synchronous Machines

Books

Course Mechanics

Syllabus

- ▶ Three phase power measurement
- ▶ Magnetic Circuits
- ▶ Transformers
- ▶ Electromechanical Energy Conversion
- ▶ DC Machines
- ▶ AC Machines
 1. Induction Machines
 2. Synchronous Machines

AC Power Measurement

Topics to study

- ▶ Single phase AC power
- ▶ Measurement of R and X in a RL circuit
- ▶ Three phase power
- ▶ Three phase power measurement
 1. Three wattmeter method
 2. Two wattmeter method

Magnetic Circuits

- ▶ Analysis of Magnetic Circuits
- ▶ Analysis of Magnetic Circuits with Air Gap
- ▶ B-H Curve
- ▶ Hysteresis
- ▶ Sinusoidal Excitation

Transformers

- ▶ Ideal Transformer
- ▶ Practical Transformer
 - ▶ Equivalent Circuit
 - ▶ Determination of Equivalent circuit parameters
 - ▶ Voltage Regulation
 - ▶ Efficiency
- ▶ Auto Transformer
- ▶ Three Phase Transformers
 - ▶ Introduction
 - ▶ Connections
- ▶ per unit system

Electromechanical Energy Conversion

- ▶ Energy Conversion Process
- ▶ Field Energy
- ▶ Mechanical Force in a linear system
- ▶ Torque in rotating machines

DC Machines

- ▶ Construction
- ▶ Induced EMF
- ▶ Developed Torque
- ▶ Classification
- ▶ DC Generators
- ▶ DC Motors

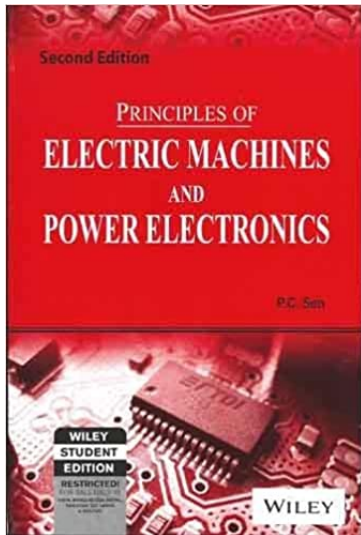
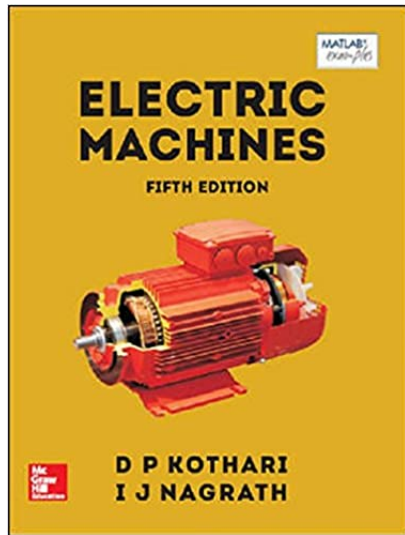
Induction Machines

- ▶ Construction
- ▶ Rotating Magnetic Field
- ▶ Equivalent Circuit
- ▶ No Load and Blocked Rotor Tests
- ▶ Performance Characteristics

Synchronous Machines

- ▶ Construction
- ▶ Equivalent Circuit Model
- ▶ Capability Curves
- ▶ Power factor control

Books



Course Mechanics

- ▶ Two Quizzes - 20 %
- ▶ Mid Sem - 30 %
- ▶ End Sem - 50 %

75 % Attendance is must.

Course Page

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