

EE 360 Electric Energy Engineering

(051) Tentative Schedule

INSTRUCTOR	OFFICE	PHONE	OFFICE HOURS	E-MAIL
Dr.I.O. Habiballah	14-265	4985	SMW: 11:00-11:50	abrahimh@kfupm.edu.sa

Textbook: *ELECTROMECHANICAL ENERGY DEVICES*, Yamayee & Bala

# of Lectures	Topics	Text Section	H.W.
3	Three Phase Balanced Circuits: Review 1- Φ circuits, Phasor diagrams, Delta and Wye connections, Power calculations	3.3,3.4	3.19, 3.22, 3.23, 3.25, 3.26, 3.27
6	Magnetic Circuits: Definition, Magnetization curves, Circuit concepts and circuit solution, Losses in magnetic circuits	4.1-4.4 +notes	4.2, 4.3, 4.4, 4.11 +extra problems
9	Transformers: Construction, Theory of operation, Equivalent circuit, Regulation and efficiency, Determination of equivalent circuit parameters, Autotransformer, 3- Φ transformers,	4.5.1-4.5.6	4.14, 4.15, 4.19, 4.21, 4.23, 4.24,4.29,4.31,4.35
9	DC Machines: Construction and principle of operation, Types of dc machines, Equivalent circuit, dc generator characteristics, dc motor characteristics, Motor starting, Speed control	6.1-6.7	6.3, 6.7, 6.9,6.13,6.18, 6.23, 6.27, 6.32, 6.36
6	Synchronous Machines: Construction and principle of operation, Equivalent circuit, Open and short circuit tests, generator voltage regulation, power output of round rotor machine, Salient pole machines, Generator synchronization	7.1, 7.2, 7.6	7.3, 7.8, 7.10, 7.12, 7.25, 7.26, 7.33,7.36
6	Three Phase Induction Motor: Construction and principle of operation, equivalent circuit, determination of parameters, torque-speed characteristics, Single phase motors	8.1-8.4	8.5, 8.11, 8.17, 8.23, 8.29
6	Transmission Lines: Line parameters, TL Models-short ,medium and long lines	9.1-9.5	9.2,9.4, 9.8, 9.19, 9.24, 9.29, 9.31

Grade Distribution:

Major Exams	30%
Quizzes	10%
Design Project & attendance	10%
Laboratory	20%
Final Exam	30%

Major Exams: **October 19** and **Dec 24**, 2005 (T.B.A.)

Laboratory Experiments(total 9): Three- phase circuits, Three-phase power measurements, Magnetic circuits, Equivalent circuit of transformer, Regulation and efficiency of transformer, Characteristics of shunt and compound generators, Torque speed characteristics of shunt and compound motors, Determination of synchronous machine parameters, Torque speed characteristics of three phase induction motors.

Laboratory instructor will assign specific dates for lab experiments and problem sessions.