Tentative Course Syllabus

Syllabus subject to change. Note that there are 2 alternate dates listed at the end of the class, in case of cancellations on the original dates.

#	Date	Lecture material covered	Assignments

1	10/11/05	• Introduction to logistics of the class
		  • Problem sets, exams, alternate dates, book errata
		• Introduction to power and signal processing concepts
		  • Fundamentals
		  • Power, phasers, 3-phase circuits, power factor
		• Magnetic circuits
		• Magnetic materials
		• Permanent magnets
		• Some design examples using finite-element analysis
		• Experiment: electrodynamic levitation
			• PS#1 handed out
			• Fitzgerald, Chapter 1

2,3	10/18/05, 10/25/05	• Transformers • Power transformers • Current transformers • Signal transformers, pulse transformers • Equivalent circuits and approximations • 3-phase transformers • The per-unit system	• Fitzgerald, Chapter 2 • PS#1 due • PS#2 handed out • PS3
4	11/1/05	• Electromechanical energy conversion • Force and torques in magnetic systems • Energy and coenergy • Multiply-excited machines • Dynamic equations	• Fitzgerald, Chapter 3 • PS#3 due
5	11/8/05	• Introduction to rotating machines • Introduction to DC machines • Introduction to AC machines • Magnetic fields in rotating machines • Linear machines	• Fitzgerald, Chapter 4 • PS#4
6	11/15/05	• Synchronous machines • Equivalent circuits • Open and short-circuit characteristics • Steady-state operating characteristics • **EXAM #1**	• Fitzgerald, Chapter 5 • PS#5 due
7	11/22/05	• Polyphase induction machines • Slip • Equivalent circuit • Torque and power	• Fitzgerald, Chapter 6 • PS#6 due
8	11/29/05	• DC machines • Commutators • Steady state performance	• Fitzgerald, Chapter 7 • PS#7 due

		• Permanent magnet machines	
9	12/6/05	• Variable reluctance machines • Steppers • Single and two-phase motors	• Fitzgerald, Chapter 8 and 9 • PS#8 due
10	12/13/05	• Issues in power electronics • Power switches • Rectification • Inversion • **EXAM2**	• Fitzgerald, Chapter 10 • PS#9 due
11	12/20/05	• ALTERNATE DATE (if needed due to canceled class)	
12	TBD	• ALTERNATE DATE (if needed)	