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Syllabus for Spring 2017

last update January 09, 2016
Course Information
Lab write up info

PH 411: Electronics - schedule (needs slight changes in weeks 7-10)

Week	Date		Reading	Activities	Topics

1	Wed	Jan 11	pp. 1 – 3
			pp. 5 – 10
			pp. 23 – 28
			pp. 31 – 34
			pp. 40 – 46
			pp. 49 – 58
				Introduction to the electronics laboratory	• DC Circuits
					• Kirchoff's Laws
					• Electronic Components
					  ○ Resistors
					  ○ Ohmic behavior
					  ○ I-V curve

	Thu	Jan 12	pp. 62 – 67
			pp. 69 – 74
			pp. 551 – 556
			pp. 571 – 575
			pp. 594 – 625
				Lab 1: Resistance	• Electronic Instruments
					  ○ Power Supply
					  ○ Digital Multimeter
					  ○ Breadboard

2	Mon	Jan 16		No classes, Martin Luther King Day	
	Tue	Jan 17			•
	Wed	Jan 18	pp. 76 – 80 pp. 299 – 324 pp. 207 – 209	Sample problems: p. 59 Examples 1 &2, p. 61, Ex. 1, p. 68 Ex. 1, p. 69 Ex. 2, p. 78 Example, p. 79 Ex.	• Voltage divider • Thevenin equivalents • Input and Output Impedance
	Thu	Jan 19			

3	Mon	Jan 23			
	Tue	Jan 24			
	Wed	Jan 25			•

	Thu	Jan 26	pp. 80 – 92
			pp. 94 – 113
			pp. 164 – 176
			pp. 204 – 207
				Lab 2: Capacitors and Time-Dependent Signals	• AC Circuits
					• Electronic Components
					  ○ Capacitors
					• Time-dependent signals
					• Electronic Instruments
					  ○ Oscilloscope
					  ○ Function Generator

4	Mon	Jan 30	pp. 210 – 217 pp. 324 – 352 pp. 575 – 594 pp. 607 – 608	Handout on RC circuits	• RC circuits • RC integrator • Complex waveforms • Frequency response • Bode plot • Fourier analysis
	Tue	Jan 31		Sample problems: p. 107 Example, p. 108 Ex., p. 226 Ex. 1	•
	Wed	Feb 01			• LabView Oscilloscope Code
	Thu	Feb 02			
5	Mon	Feb 06			
	Tue	Feb 07			•
	Wed	Feb 08			•
	Thu	Feb 09			Excel file for Chi squared fitting
6	Mon	Feb 13	pp. 113 – 155 pp. 355 – 373	Lab 3: Inductors and Time-Dependent Signals	• Inductors • RL circuits

	Tue	Feb 14			
	Wed	Feb 15			
	Thu	Feb 16			
7	Mon	Feb 20			
	Tue	Feb 21	pp. 429 – 449	Lab 4: Transistor basics	• Bipolar-junction transistors
	Wed	Feb 22			•
	Thu	Feb 23			
8	Mon	Feb 27	pp. 635 – 662	Handout on op amps	• Operational Amplifiers • Op amp rules • Negative feedback • Non-inverting amplifier • Inverting amplifier
	Tue	Feb 28		Lab 5: Introduction to Operational Amplifiers	
	Wed	Mar 01			
	Thu	Mar 02			
9	Mon	Mar 06			
	Tue	Mar 07			
	Wed	Mar 08			
	Thu	Mar 09			
10	Mon	Mar 13	pp. 683 – 686	Handout on op amp applications	• Transimpedance amplifier

			pp. 674 – 681		• Summing Amplifier
	Tue	Mar 14		Lab 6: Op Amp Applications	
	Wed	Mar 15			
	Thu	Mar 16			
10	Mon	Nov 28			
	Tue	Nov 29			
	Wed	Nov 30			
	Thu	Dec 1			

If you have comments or suggestions: tell Dr. Tom, or email Prof. McIntyre who is the author of the new Ph411 curriculum: *mcintyre@ucs.orst.edu*

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