2015WI Pre-Class Readings From the Notes

2014_12_21

Date	Pages	Example of the material covered
Wk 0		
Weds Jan 7	Intro	Course introduction.
	1.1 – 1.5	**1) Review of electricity**: current, voltage, resistance, Ohm's law
Wk 1		
Mon Jan 12	2.1 – 2.5	**2) DC circuit theory**: Kirchhoff's laws, loop currents, voltage divider, electrical power, circuit common and ground.
	3.1 – 3.4	**3) Multimeters and oscilloscopes**: real meters, rms, oscilloscopes.
Weds Jan 14	4.1 – 4.5	**4) Capacitors and inductors**: circuits with capacitors and inductors.
Thurs Jan 15	N/A	**LAB 1 - DC Measurements and resistance**
Wk 2		
Mon Jan 19	5.1 – 5.6	**5) Network theorems**: voltage and current sources, Thevenin's and Norton's theorems.
	6.1 – 6.8	**6) Operational amplifiers**: real amplifiers, calculation of gain with negative feedback, inverting & non-inverting voltage amplifier, voltage follower, adder, subtractor.
Wed Jan 21	6.9 – 6.13	Op-amp's (cont'd): integrator, differentiator, analogue computing, comparator
Thurs Jan 22	N/A	**LAB 2 – The oscilloscope and periodic waveforms**
Wk 3		
Mon Jan 26	7.1 – 7.6	**7) Semiconductors and the p-n Junction**: semiconductor theory the p-n junction and operation as a diode
Wed Jan 28	8.1 – 8.3	**8) Use of diodes for wave shaping**
Thurs Jan 29	N/A	**LAB 3 – Operational Amplifiers**
Wk 4		
Mon Feb 2	9.1 – 9.5	**9) Bipolar junction transistors**: bias for normal operation, transistor characteristics, and the emitter follower
Wed Feb 4	10.1 – 10.6	**10) Power control**: transistor switches, relays and thyristors
	11.1 – 11.4	**11) Transducers & Servo Controllers:** temperature/light measurement
Thurs Feb 5	N/A	**LAB 4 – Power Control**
Wk 5		
Mon Feb 9	N/A	**Midterm test**
Wed Feb 11	12.1 –12.5	**12) Digital electronics: gates, memory and counters:** Truth tables, DeMorgan's theorems
Thurs Feb 12	N/A	**LAB 5 – Transducers and Servo Systems**

Mon Feb 16 – Fri Feb 21			**READING WEEK**
Wk 6			
	Mon Feb 23	12.6 – 12.9	SR flip-flop, JK flip-flop
	Wed Feb 25	12.9 – 12.12	Counters, digital arithmetic, and internal structure of a computer
	Thurs Feb 26	N/A	**LAB 6 – Logic Gates and Digital Circuits**
Wk 7			
	Mon Mar 2	12 .13 – 12.16	Computer control & data acquisition
	Wed Mar 4	N/A	Review
	Thurs Mar 5	N/A	**LAB 7 – Computer Interfacing**
Wk 8			
	Mon Mar 9	13.1 – 13.8	**13) AC Circuits**: Complex representations, impedance, filters RC filters, decibels
	Wed Mar 11	13.9	Tuned filters
	Thurs Mar 12	N/A	**LAB 8 – Filters**
Wk 9			
	Mon Mar 16	14.1 – 14.4	**14) DC Power Supplies**: Transformers, rectification, capacitor filters
	Wed Mar 18	14.5 – 14.9	Zener regulators and IC Regulators
	Thurs Mar 19	N/A	**LAB 9 – DC Power Supplies**
Wk 10			
	Mon Mar 23	15.1 – 15.2	**15) Oscillators**: Relaxation oscillators
	Wed Mar 25	15.3 – 15.5	Regenerative oscillators and quartz crystal oscillators
	Thurs Mar 26	N/A	**Lab Component of Final Exam**
Wk 11			
	Mon Mar 30	N/A	Review session for final exam
	Wed Apr 1	N/A	Review session for final exam
	Thurs Apr 2	N/A	**LAB 10 – Oscillators**
Wk 12			
	Mon Apr 6	N/A	Review session for final exam