Electrical Circuits: ENGN/PHYS 207 Fall 2019

[Last updated: 12 Dec 2019]

Yellow highlight = YMCA program date

Date	Topic	Text Reading
	WEEK 1	
R 05-Sep	"Hellos!" and quick syllabus review; **LAB 0**: Voltage and Current, Ohm's Law	1.2, 2.1
M 09-Sep	Kirchoff's Laws; Series & parallel equivalent resistors;	2.2 - 2.5
W 11-Sep	Voltage dividers; Resistors as sensors: flexible, photocells, thermistors, etc	2.3, 2.5; see website
R 12-Sep	**LAB 1**: Audio volume control and gesture sensing glove	
	WEEK 2	
M 16-Sep	**YMCA: Initial Meetings at Elementary Schools**	
W 18-Sep	Power consumption and battery life; Continuous Resistors	1.2
R 19-Sep	**LAB 2**: Distributed resistance; soil moisture monitor	
	WEEK 3	
M 23-Sep	**YMCA After School Program #1 (group 1)**	
W 25-Sep	Nodal voltage and Ground; Wheatstone Bridge theory	1.2, 2.7
R 26-Sep	**LAB 3:** Wheatstone Bridge: thermal warning system	
	WEEK 4	
M 30-Sep	**YMCA Science After School Program #2 (group1)**	
W 02-Oct	RLC Resonance	6.1 – 6.3, 8.3 – 8.6
R 03-Oct	**No Lab:** *Exam 1 Out (due Tuesday 5pm Oct 08)*	
	WEEK 5	
M 07-Oct	**YMCA Science After School Program #3 (group1)**	
W 09-Oct	Phasor Math	8.3, 8.6
R 10-Oct	**No lab**: Reading Days!	
	WEEK 6	
M 14-Oct	Phasors; Capacitors and Inductors; Impedance; Generalized Ohm's Law	8.2, 8.4, 8.7
W 16-Oct	RLC resonators, Transfer Function.	12.3
R 17-Oct	**LAB 4a**: RLC resonance: AM radio receiver	12.3
	WEEK 7	

Date	Topic	Text Reading
M 21-Oct	**YMCA Science After School Program #4 (group 2)**	
W 23-Oct	AM radio: Diode rectifier + RC smoother + op-amp first glimpse	7.2; See website
R 24-Oct	**Lab 6**: Finish AM radio receiver	
	WEEK 8	
M 28-Oct	**YMCA Science After School Program #5 (group 2)**	
W 30-Oct	RC filters (low pass); Frequency Response	12.2, 12.5
R 31-Oct	**LAB 6:** RC filters: music and biomedical applications	
	WEEK 9	
M 04-Nov	**YMCA Science After School Program #6 (group 2)**	4.3
W 06-Nov	Finish RC filters; RFID technology	12.5; See website
R 07-Nov	**LAB 7:** Op-amp applications: pro audio gear	See website
	WEEK 10	
M 11-Nov	Op-amps: cascades; instrumentation amp	4.1 – 4.3
W 13-Nov	Active filters: LPF, HPF; BPF	4.3; See website
R 14-Nov	**LAB**: Begin final project; Learn how to Solder and Prototype!	
	WEEK 11	
M 18-Nov	Single Supply Op-amp Design; Transistor as digital switch	See website
W 20-Nov	Difference and Instrumentation Amplifier	See website
R 21-Nov	**LAB**: Final project workshop time; Learn how to Solder!	
	THANKSGIVING WEEK	
Nov 25–29	*No class: Happy Thanksgiving--enjoy time with your family and friends!*	
	WEEK 12	
M 02-Dec	RFID sniffer: Digital Security Considerations; *Final Exam Out*	10.3
W 04-Dec	Transformers; Electrical Grid; Electrical Safety; Course feedback. Donuts!	
R 05-Dec	**LAB**: Complete Final Project; Final Project Proof-of-Concept Demo	
	FINALS WEEK	
Dec 07 – 13	Final Project Report Due: Dec 10, noon. Final Exam due 11.59pm, Dec 12	