

When and where	Lecture Palmer 3070 12:55-2:15 – T,R	Lab (Sec 002) – NE 2350 – 11:06-12:45 pm T Lab (Sec 003) – NE 2350 – 11:06-12:45 pm R Lab (Sec 004) – NE 2350 – 9:25-11:05 am T
Instructor	Prof. Wm Ted Evans, PhD, PE (Ohio)-Office: NE 1607, Phone 419-530-3349, cell 419-343-3681 Email: William.evans@utoledo.edu web: www.hybridplc.org	
Office Hours	9:30-12:00 M,W	
Prerequisite	Prerequisites: varies	
Textbooks	Online text furnished at above website plus the following free texts which are an added supplement: https://milneopentextbooks.org/dc-electrical-circuit-analysis-a-practical-approach/ https://milneopentextbooks.org/ac-electrical-circuit-analysis-a-practical-approach/ https://milneopentextbooks.org/semiconductor-devices-theory-application-lab-manual/	
Useful References	ELEGOO Upgraded Electronics Fun Kit w/Power Supply Module, Jumper Wire, Precision Potentiometer, 830 tie-Points Breadboard for Arduino, STM32 by ELEGOO furnished by UToledo	
Grading	Homework 10%, Pop Quizzes 10%, Labs 20 %, Hour Exam I 15% Hour Exam II 15%, Hour Exam III 15%, Final Exam 15 % (Comprehensive) (A >= 90, B >= 80, C >= 70, D >= 60)	
	1. No eating, drinking, or smoking in classrooms. 2. There are no make-up exams for this course. If you have a problem or conflict and cannot attend an exam, let me know beforehand and we will try to work something out. No credit will be given for a missed exam that we haven't made arrangements about beforehand unless you have a really excusable emergency. Cell phone use will not be allowed. If you do not have a calculator, buy one and bring it to class. <i>Cheating is not allowed and will be punished by rules of U of Toledo Student Handbook.</i>	
Catalog descriptions	This course constitutes an introduction to basic analytical and laboratory techniques for resistive and reactive DC and AC electric circuits, and an introduction to electronic devices, including diodes and transistors.	
Topics and reading assignments (subject to change, any changes will be notified in the class beforehand)	1.Basic electrical components and quantities 2. Definitions of voltage, current and electrical resistance 3. Ohm's Law, electrical energy and power 4. Series DC circuit analyses 5. Parallel DC circuit analyses 6. Series / parallel DC circuit analyses 7. Circuit theorems – superposition and Thevenin's theorem 8. Basic mesh current analysis techniques 9. Sinusoidal waves 10. Inductors in DC circuits 11. RL circuits with AC sources 12. Transformers 13. Capacitors in DC circuits 14. RC circuits with AC sources 15. RLC circuits with AC sources 16. Semiconductors and diodes 17. Introduction to transistors 18. Introduction to National Electric Code (NEC)	
Related Program Outcomes Class dates (Exam dates are subject to change.)	The student will demonstrate a firm understanding of the behavior of DC electrical circuits. The student will demonstrate a thorough knowledge of the AC steady state behavior of electrical circuits as well as transient analysis of RL and RC switching DC circuits. The student will demonstrate familiarity with the phasor solution of AC circuits and AC power relationships. The student will demonstrate familiarity with the operating principles and linear applications of diodes and bipolar junction transistors. The student will use a mathematical and problem solving approach for introductory circuit analysis, based on fundamental DC and AC circuit principles and math concepts. This will include the use of computer simulations. The student will demonstrate facility at constructing and trouble shooting basic DC and AC circuits in the laboratory with proper use of test equipment.	
	Homework assignments are listed on the website and are accepted only before or on the assigned day. Pop quizzes may occur any day at the end of the class period.	

	Date	Lecture	Homework/Lab
Week 1	8/29	Intro – Ch. 1 Electric Circuits	1.1-1.18 Due 9/7/22
	8/31	Ch. 2 Series, Parallel Circuits	
Week 2	9/5	Ch. 2 Series-Parallel Circuits	2.1-2.10 Due 9/14/22 – Lab 1
	9/7	Ch. 2 Series-Parallel Circuits	
Week 3	9/12	Ch. 3 – Three Theorems	Lab 2
	9/14	Ch. 3 – Three Theorems	
Week 4	9/19	Ch. 3 – Three Theorems	Lab 3
	9/21	Ch. 3 – Three Theorems	3.1-3.35 Due 9/28/22
Week 5	9/26	Ch. 4 – Current & Power	Lab 4
	9/28	Ch. 4 – Current & Power	
Week 6	10/3	Ch. 4 – Current & Power	4.1-4.24 Due 10/10/22 Lab 5
	10/5	Ch. 5 – Mesh & Loop	
Week 7	10/10	Ch. 5 – Mesh & Loop	Lab 6
	10/12	Test 1	
Week 8	10/17	No Class – Fall Break	5.1 Due 10/20/22
	10/19	Ch. 6 – Time Varying	
Week 9	10/3	Ch. 6 – Time Varying	6.1-6.15 Due 10/27/22 Lab 7
	10/5	Ch. 7 – Inductance	7.1-7.6 Lab 7
Week 10		Ch. 7 – Ind & Caps	7.7-7.16 Due 11/8/22 Lab 8
		Ch. 7 – Ind & Caps	
Week 11		Ch. 8 – Complex Nos	Lab 9
		Ch. 9 – AC Circuits	8.1-8.13 Due 11/10/22
Week 12		Ch. 9 – AC Circuits	Lab 10
		Test 2	9.1-9.11 Due 11/17/22
Week 13		Ch. 10 Diodes	
		Thanksgiving	
Week 14		Ch. 11 Transistors	Lab 11
		Ch. 11 Transistors	10.1-10.6 Due 12/6/22
Week 15		Ch. 12 OP Amps	11.1-11.12 Due 12/8/22
		Test 3	
Week 16		Finals Week	