

1. Course Title:

Basic Electricity EET 221 – 5 Credits

EET Program Requirement offered each fall

Prerequisite: Math 153

This is a Technical content course under ABET Criterion 5

2. Faculty Member Information:

Instructor:

Office: Hebel 101A

Phone: 509-963-1763

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3. Course Description:

The fundamental principles of DC, AC, series and parallel circuits, resistance, capacitance, inductance, and power are explored. Theory is reinforced by practical laboratory experimentation.

4. Textbook and other required materials for the course:

Paynter, & Boydell, *Electronic Technology Fundamentals* 2nd Ed, Prentice Hall, 2005

5. Specific Learner and Expressive Outcomes and Assessment Strategies:

ABET Outcome Criteria #	Learner Outcomes	Assessment
3.a.	1. The student will use the basic electrical laws (Ohm's Law, Kirchhoff's Voltage Law, Kirchhoff's Current Law, power) to analyze electrical circuits	The student will complete a written test and perform laboratory assignments
9.A.1	2. The student will solve direct current (DC) series, parallel, and series-parallel networks.	The student will complete a written test and perform laboratory assignments
3.b.	3. The student will solve alternating current (AC) series and parallel networks using complex notation.	The student will complete a written test and perform laboratory assignments
	4. The student will write and solve mesh and node equations using Thevenin's and Norton's theorems.	The student will complete a written test and perform laboratory assignments
	5. The student will measure voltage, current, and resistance using a multimeter.	The student will complete a written test and perform laboratory assignments
	6. The student will measure voltage, frequency, and time using an Oscilloscope	The student will complete a written test and perform laboratory assignments
	7. The student will classify resistors, capacitors, and inductors by shape, size, and part markings.	The student will complete a written test and perform laboratory assignments
	8. The student will solve alternating current (AC) series and parallel networks using complex notation	The student will complete a written test and perform laboratory assignments
	9. The student will construct and analyze Resistive-Inductive (RL) circuits.	The student will complete a written test and perform laboratory assignments
	10. The student will construct and analyze Resistive-Capacitive (RC) circuits.	The student will complete a written test and perform laboratory assignments
	11. The student will use logical troubleshooting techniques to debug problems.	The student will revise circuits and the required instrumentation setup and describe

		the process in the associated lab report.
	12. The student will communicate assumptions, results (data), and conclusions about technical information in a coherent and prescribed format.	The student will complete a written test and write up the findings of the laboratory assignments in a prescribed report format.
3.j.	13. The student will recognize how electronics effect societal and global issues	The student will complete a written test.

6. Course Topics and Schedule:

The following schedule represents the intended sequence of study and is subject to adjustment to meet the needs of the class. The readings are from the Paynter text.

<u>Week of</u>	<u>Topic</u>	<u>Reading</u>	<u>Lab</u>
	Voltage, Current, Resistance Wire, Switches	Ch. I, 1, 2	1, 2
	Ohm's Law, Power, Series	Ch. 3, 4	3, 4
	Series & Parallel Circuits	Ch. 4, 5	5, Lab Test
	Series-Parallel, Exam 1	Ch. 6	7, 9
	Circuit Analysis Techniques	Ch. 7	10, Scope
	Alternating Current, Inductors	Ch. 9,10	13, 14
	Inductors, RL Circuits	Ch. 10, 11	Scope Test
	Capacitors, Exam 2	Ch. 12	15,18
	RC Circuits	Ch. 13	Power Lab
	RLC Circuits, Review	Ch. 14	22
	Final Exam 8:00-9:50 AM (Comprehensive)		

7. **Grading:** Your final grade will be based on the number of points you earn. The point breakdown and grading scale are shown below:

EET221		EET221 LAB	
Exam 1	50	Book Labs – 13	65
Exam 2	50	Lab Projects	15
Final Exam	100	Practical Exams – 2	20
Book Homework	160	-----	
Other Homework	40	Total Points	100

Total Points	400		

EET221
A = 372-400 B = 332-341 C = 292-307 D = 252-267
A- = 360-371 B- = 320-331 C- = 280-291 D- = 240-251
B+ = 348-359 C+ = 308-321 D+ = 268-279 F = 239 and below

EET221 Lab
A = 93-100 B = 83-86 C = 73-76 D = 63-66
A- = 90-92 B- = 80-82 C- = 70-72 D- = 60-62
B+ = 87-89 C+ = 77-79 D+ = 67-69 F = 59 and below

8. ADA Statement:

Students who have special needs or disabilities that may affect their ability to access information and or material presented in this course are encouraged to contact me or Robert Harden, ADA Compliance Officer, Director, ADA Affairs and Students Assistance on campus at 963-2171 for additional disability related educational accommodations.