

North Central Michigan College

NCMC MASTER COURSE SYLLABUS FOR YEARS 2001-2003

DIVISION/AREA: Business and Technology

DEPARTMENT:

DIVISION DIRECTOR: Robert J. Marsh, Ph.D., P.E.

ORIGINATOR:

DEAN OF INSTRUCTION: Timothy Dykstra, Ph.D.

TOTAL HOURS OF INSTRUCTION: LECTURE: 3 LAB: 3

TOTAL CONTACT HOURS: 105.6

COURSE NUMBER: EGT 150

CREDIT HOURS: 4

COURSE TITLE: AC/DC Electricity

TRANSFERABLE YES: NO: X TO:

PREREQUISITE(S)/COREQUISITE(S)/ADVISORY: MTH 111

CATALOG DESCRIPTION:

A study of resistive DC circuits, Ohm's laws, Kirchhoff's laws, Thevenin and Norton Theorems, superposition, magnetism and electromagnetic induction. AC fundamentals, inductance, capacitance, reactance, RC, RL, and RLC circuits, network analysis for AC circuits, resonance and passive filters are also covered. Hands-on exercises include wiring circuits, data recording, and making voltage, current and resistance measurements using laboratory test equipment.

GENERAL EDUCATION OUTCOMES:

- Think critically and analytically
 - Independently acquire knowledge
 - Select and use mathematical tools for problem solving and decision making
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COURSE OBJECTIVES & OUTCOMES:

- Understand electrical and magnetic laws, quantities and computationally analyze ac/dc passive electrical circuits (RLC).
- Draw schematic diagrams, graphs, and tables for illustration and documentation of analysis activities and laboratory experiments.
- Use proper safety techniques, laboratory equipment and tools to construct, test, troubleshoot and discuss ac and dc passive electrical circuits (RLC).
- Use a computers to design, simulate and document electrical circuits.

METHODS OF INSTRUCTION: Lecture, hands on exercises, homework assignments, lab exercises

METHODS OF EVALUATION:

<u>Evaluation</u>	<u>% of Total Grade</u>	<u>Exam Coverage in Grob</u>
<u>Criteria:</u> Test #1	15%	Ch 1 through Ch 8
Test #2 (Mid-Term)	15%	Ch 1 through Ch 11
Test #3	15%	Ch 13 through Ch 19
Text #4 (Final Exam)	20%	Ch 1 through Ch 27
Laboratory Assignments	20%	
Homework	<u>15%</u>	
	100%	

REQUIRED TEXTS:

Text Book: Basic Electronics By Grob 8th edition

Lab Book: Experiments in Basic Electronics by Pugh/Ponick 4rd edition

OPTIONAL SUPPLEMENTARY MATERIALS:

Reasonable accommodations may be provided for students with documented physical, sensory, cognitive, systemic, and/or psychiatric disabilities. Please contact the Education Opportunity Program (EOP) at (231) 348-6687 to arrange services for this course.

TIME ALLOWANCE AND SEQUENCE OF INSTRUCTION:

WEEK

1. Math and systems of units for electronics + resistors
2. Ohm's law and series circuits
3. Parallel circuits and series-parallel circuits
4. Voltage dividers and TEST1
5. Kirchhoff's laws
6. Network theorems
7. Conductors and insulators
8. MIDTERM EXAM and magnetism (simply)
9. Alternating voltage and current
10. Capacitance
11. R/C circuits
12. TEST 3 and Inductance
13. R/L and RLC circuits
14. Time constants
15. Resonance and Filters
16. FINAL EXAM

APPROVED FOR ADOPTION BY THE CRD/AP COMMITTEE ON _____