

MISSION COLLEGE
ASSOCIATE DEGREE CREDIT COURSE OUTLINE

SECTION I Course Data

COURSE NUMBER

CET 52

COURSE TITLE

DC Principles

UNITS

4

LECTURE HOURS (PER WEEK)

3

LAB HOURS (PER WEEK)

3

CREDIT/NO CREDIT OPTION ___ YES x NO**MAY THIS COURSE BE REPEATED?** ___ YES X NO**RECOMMENDED FOR CREDIT BY EXAMINATION?** YES ___ NO ___**CATALOG COURSE DESCRIPTION**

Acceptable for credit: California State University.

A comprehensive introductory course in electronics. DC voltages, resistance, series and parallel circuits. An introduction to voltage and current divider rules. Thevenin's theorems, and other pertinent DC concepts. Emphasis is on laboratory procedures and use of electronic test equipment.

DESCRIPTION FOR THE SCHEDULE OF CLASSES

Preq: CET 051 w/C or math placement. Recommend eligibility for ENGL 59 and MATH C. Comprehensive introductory course in electronics, DC Theory including action of electron flow, currents, voltages, resistance, series and parallel circuits.

ACCEPTABLE FOR TRANSFER CREDITCalifornia State University; Yes X No ___University of California; Yes ___ No X (The University determines transferability to its system)**PREREQUISITE**

CET 051 with a grade of C or better.
 Recommend eligibility for ENGL 59 and MATH C.

COREQUISITE

COURSE OBJECTIVES

Upon completion students will have the following skills:

1. Practice making accurate voltage, current, and resistance measurements using standard VOM and DVM meters.
2. Evaluate and adjust for meter loading in sensitive circuits.
3. Analyze series-parallel circuits.
4. Be able to analyze any DC circuit by making MESH equations and solve them using a computer.
5. Design and analyze circuits using Ohm's law, Thevinin's Theorem, the formulas for power, Delta-Y transformations, the Superposition Theorem, and Kirchoff's voltage and current laws.
6. Troubleshoot simple DC circuits.
7. Explain the DC characteristics of diodes and capacitors.

SECTION II

1. COURSE CONTENT AND SCOPE

A. OUTLINE OF TOPICS TO BE ADDRESSED IN THE COURSE

1. Electric charge and current
2. Voltage
3. Concept of ground
4. Resistance
5. Power
6. Ohm's Law
7. Series circuits
8. How to measure voltage and current
9. Parallel circuits
10. Kirchoff's Laws
11. Trouble shooting series and parallel circuits
12. Current sources
13. Series-Parallel circuits
14. Bridge Networks
15. Troubleshooting Series-Parallel circuits
17. Thevinin's Theorem
18. Norton's Theorem
19. Millman's Theorem
20. Delta-Y and Y-Delta Transformations
21. Circuit analysis using mesh equations
22. The circuitry inside a VOM
23. Meter loading effects
24. Capacitors and the RC Time Constant
25. The diode and DC properties of the diode
26. The transistor and DC properties of the transistor

B. APPROPRIATE READINGS

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1. 15 to 30 pages per week off not less than 11th grade level DC Electronics textbook
2. 2 to 4 pages per week from a DC Electronics laboratory manual.
3. Occasional handouts on special topics.

C. WRITING ASSIGNMENTS, DEMONSTRATIONS OF ABILITY TO USE SYMBOL SYSTEMS OR DEMONSTRATIONS OF ABILITY TO APPLY SKILLS LEARNED IN THE COURSE.

1. Many homework problems may require up to 3 pages of analysis with corresponding detailed drawings of circuits.
2. The laboratory exercises require the skills of building circuits, testing them, and making appropriate measurements on them.

D. APPROPRIATE OUTSIDE ASSIGNMENTS

Students are expected to perform approximately 2 hours of outside activity for each hour of lecture.

1. Problems to solve which illustrate fundamental techniques of analysis and the application of basic theory.
2. Reading assignments.
3. Preparation for laboratory experiments.

E. APPROPRIATE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING

1. Based on measurements, predict the response of a circuit. Estimate the cause of any malfunctions and propose a solution. Make the changes, and measure and assess the results.
2. Analyze circuits comprised of a series/parallel combination of resistors.

2. METHOD OF INSTRUCTION

Lecture/Lab

3. APPROPRIATE TEXTS AND SUPPLIES

Principles of Electric Circuits, 2nd Edition, Floyd, Merrill.
Experiments in Electric Circuits, Stanley, McGraw/Hill.

4. EVALUATION

Midterms, Final exam, Lab test on using meters, satisfactory completion of homework and laboratory assignments.

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DATE PREPARED: 11/7/87

DEPARTMENT CHAIR: Roy Goody

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2/14/95