ELEC 70B Course Outline as of Fall 2009

CATALOG INFORMATION

Dept and Nbr: ELEC 70B   Title: THEORY ALT CURRENT
Full Title: Theory of Alternating Current
Last Reviewed: 11/5/1997

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00   Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable
Grading: Grade Only
Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:
Formerly:

Catalog Description:
Electronics topics include magnetism, alternating current, capacitance, inductance, transformers, and AC circuit analysis. Math topics include right angle trigonometry, periodic functions, harmonics, vectors, phasor algebra, logarithms, and decibels.

Prerequisites/Corequisites:
Not open to students who have completed ELEC 60. Completion of ELEC 70A and ELEC 70AL and concurrent enrollment in ELEC 70BL.

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Fundamentals of alternating current & electronics math. (Grade Only)
Prerequisites/Corequisites: Not open to students who have completed ELEC 60. Completion of ELEC 70A and ELEC 70AL and concurrent enrollment in ELEC 70BL.
Recommended:
Limits on Enrollment:

Transfer Credit:
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree: **Area** Effective: Inactive:
CSU GE: **Transfer Area** Effective: Inactive:

IGETC: **Transfer Area** Effective: Inactive:

CSU Transfer: Effective: Inactive:

UC Transfer: Effective: Inactive:

CID:

Certificate/Major Applicable:
Certificate Applicable Course

COURSE CONTENT

Outcomes and Objectives:
 The student will be able to:
    1. identify characteristics of magnetism.
    2. identify AC units and calculate values in an AC resistive
       circuit.
    3. identify and give characteristics of capacitors, inductors,
       and transformers.
    4. analyze and evaluate RC, RL, and RLC circuits.
    5. solve right triangles using trigonometry.
    6. solve and analyze impedance triangles.
    7. analyze vectors graphically and mathematically.
    8. identify and analyze periodic functions.
    9. calculate electronic circuit problems using phasor algebra.
   10. apply logarithms to AC circuits.

Topics and Scope:

 1. Magnetism.
 2. Alternating current (AC).
 3. Capacitance.
 4. Series & Parallel RC circuits.
 5. Inductance.
 6. Transformers.
 7. Series & Parallel RL circuits.
 8. RLC circuits.
 9. Right angle trigonometry.
10. Impedance triangles.
11. Vectors.
12. Periodic functions.
13. Phasor algebra.

14. AC circuits:
    a. series
    b. parallel
    c. series parallel
15. Logarithms with applications.

Assignment:

1. Textbook readings.
2. Textbook homework problems.
3. Handout homework problems.

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.

Writing
0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Quizzes

Problem solving
30 - 70%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations
0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Multiple choice, Completion, COMPUTATIONAL

Exams
30 - 70%

Other: Includes any assessment tools that do not logically fit into the above categories.

None

Other Category
0 - 0%

Representative Textbooks and Materials:
ELECTRIC CIRCUIT FUNDAMENTALS by Floyd.