ELEC 70A Course Outline as of Spring 2010

CATALOG INFORMATION

Dept and Nbr: ELEC 70A Title: DIRECT CURRENT THEORY
Full Title: Direct Current Theory
Last Reviewed: 5/19/2008

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:
Introduction to atomic theory, basic laws of physics, electrical units, direct current circuit analysis, magnetism, batteries and meters.

Prerequisites/Corequisites:

Recommended Preparation:
Eligibility for or concurrent enrollment in ELEC 191 (or ELEC 91) or ELEC 90A or higher.

Limits on Enrollment:

Schedule of Classes Information:
Description: Introduction to atomic theory, basic laws of physics, electrical units, direct current circuit analysis, magnetism, batteries and meters. (Grade Only)
Prerequisites/Corequisites:
Recommended: Eligibility for or concurrent enrollment in ELEC 191 (or ELEC 91) or ELEC 90A or higher.
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:
1. Make circuit calculations using Ohm's law and Watt's law.
2. Analyze and evaluate series, parallel, and series-parallel circuits.
3. Design a basic voltage divider.
4. Design ammeter shunts and voltmeter multipliers.
5. Identify and describe characteristics of fuses, circuit breakers, switches, resistors and conductors.
6. Identify characteristics of batteries.
7. Explain the theory of magnetism.
8. Apply Kirchhoff's loop equations to evaluate networks.
9. Apply Thevenin's theorem and superposition techniques to solve complicated electrical networks.

Topics and Scope:

1. Atomic structure
2. Ohm's law
3. Watt's law
4. Series circuits
5. Parallel circuits
6. Series-parallel circuits
7. Voltage dividers
8. Meters
9. Conductors and insulators
10. Switches, fuses, and circuit breakers
11. Resistor types and potentiometers
12. Batteries
13. Magnetism
14. Kirchhoff's loop equations
15. Thevenin's theorem

Assignment:

1. Textbook readings, approximately 15-25 pages per week
2. Textbook homework problems (5-50 per week)
3. Handout homework problems (5-50 per week)
4. Quizzes: 0-16
5. Midterm exams: 2-4
6. Final exam

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	Problem solving 20 - 40%

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.

Quizzes, mid-term, final exam: multiple choice, true-false, matching, problem solving	Exams 60 - 80%

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

None	Other Category 0 - 0%

Representative Textbooks and Materials:
Thomas L. Floyd. Electric Circuit Fundamentals, seventh edition. Prentice Hall, 2006.