

CATALOG INFORMATION

Dept and Nbr: ELEC 70A      Title: DC 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	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:  
Atom theory, basic laws of physics, electrical units, direct current circuit analysis, batteries, magnetism, and meters.

Prerequisites/Corequisites:

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:  
Description: Atom theory, basic laws of physics, electrical units, direct current circuit analysis, batteries, magnetism & meters. (Grade Only)  
Prerequisites/Corequisites:  
Recommended:  
Limits on Enrollment:  
Transfer Credit: CSU;  
Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>			Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>			Effective:	Inactive:
<b>IGETC:</b>	<b>Transfer Area</b>			Effective:	Inactive:
<b>CSU Transfer:</b>	Transferable	Effective:	Fall 1981	Inactive:	Spring 2010
<b>UC Transfer:</b>		Effective:		Inactive:	

**CID:**

**Certificate/Major Applicable:**

Certificate Applicable Course

## **COURSE CONTENT**

### **Outcomes and Objectives:**

The student will be able to:

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 give characteristics of fuses, circuit breakers, switches, resistors, and conductors.
6. identify characteristics of batteries.
7. identify characteristics of magnetism.
8. apply Kirchhoff's loop equations to evaluate networks.
9. apply Thevenin's theorem to evaluate networks.

### **Topics and Scope:**

1. Atom 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/insulators.
10. Switches/fuses/circuit breakers.
11. Resistor types/potentiometers.
12. Batteries.
13. Magnetism.
14. Kirchhoff's loop equations.
15. Thevenin's theorem.

## 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.