

CATALOG INFORMATION

Dept and Nbr: ELEC 70AL      Title: DC AND CONST LAB  
Full Title: Direct Current and Electronic Cons Lab  
Last Reviewed: 5/5/2008

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	1.00	17.5	Lecture Scheduled	17.50
Minimum	2.00	Lab Scheduled	2.00	17	Lab Scheduled	35.00
		Contact DHR	1.00		Contact DHR	17.50
		Contact Total	4.00		Contact Total	70.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 35.00

Total Student Learning Hours: 105.00

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:**  
Measurement and analysis of DC circuits. Documentation of results in a lab report format. Basic electronic fabrication involving general safety rules, soldering and de-soldering a variety of terminal posts and printed circuit boards, coaxial, and shielded pair cable assembly, and schematic reading.

**Prerequisites/Corequisites:**  
Concurrent enrollment in ELEC 70A.

**Recommended Preparation:**

**Limits on Enrollment:**

**Schedule of Classes Information:**  
Description: Analysis & measurement of DC cir & report writing. (Grade Only)  
Prerequisites/Corequisites: Concurrent enrollment in ELEC 70A.  
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>			<b>Effective:</b>	<b>Inactive:</b>
<b>CSU GE:</b>	<b>Transfer Area</b>			<b>Effective:</b>	<b>Inactive:</b>
<b>IGETC:</b>	<b>Transfer Area</b>			<b>Effective:</b>	<b>Inactive:</b>
<b>CSU Transfer:</b>	Transferable	<b>Effective:</b>	Fall 1981	<b>Inactive:</b>	Spring 2010
<b>UC Transfer:</b>		<b>Effective:</b>		<b>Inactive:</b>	

**CID:**

**Certificate/Major Applicable:**

Certificate Applicable Course

## **COURSE CONTENT**

### **Outcomes and Objectives:**

The student will be able to:

1. measure resistance using a VTVM.
2. connect circuits following a schematic diagram.
3. measure current through different parts of an Electrical Circuit - using an ammeter.
4. measure voltage across different points in an Electrical Circuit using a voltmeter.
5. document lab results using data tables, schematics, and graphs as appropriate.
6. evaluate lab results through written observations.
7. pass an Electrical Safety Exam with a grade of 80% or better.
8. solder and de-solder wires and components to terminals and printed circuit boards.
9. tin stranded wires and splice wires by various acceptable techniques.
10. construct a twisted shielded pair cable and a coaxial cable.
11. identify graphic symbols of common electrical components with a grade of 80% or better.

### **Topics and Scope:**

1. Resistance measurement (VTVM).
2. Circuit connections - use of a springboard.
3. Meter reading.
4. Meter connections (In Circuit).
5. Lab report writing.
6. Comparison of theoretical versus measured results.
7. Electrical safety.
8. Soldering techniques such as tinning, splicing, and solder

feeding.

9. Basic concepts and familiarization of electronic hand tools.
10. Connecting wires and components to terminals and boards.
11. Coaxial and shielded pair cable assembly.
12. Identification of electronic symbols on schematic drawings.

### Assignment:

#### Lab Reports

1. Resistance measurements.
2. OHM's Law.
3. Series circuit.
4. Parallel circuits.
5. Series-parallel circuits.
6. Internal resistance.
7. Maximum power transfer.

#### Hands-On Test

1. Kirchhoff's Law.

#### Construction Projects

1. Safety exam.
2. Soldering wire terminations.
3. Connecting wire and component leads to terminal strips.
4. Coaxial and shielded pair cable assembly.
5. Printed-Circuit board assembly techniques.
6. Reading schematic diagrams.

### 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.

Lab reports

Problem solving  
30 - 70%

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

Class performances, HANDS ON TEST

Skill Demonstrations  
10 - 50%

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

None

Exams  
0 - 0%

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

None

Other Category  
0 - 0%

**Representative Textbooks and Materials:**