

**ELEC 62 Course Outline as of Fall 2009****CATALOG INFORMATION**

Dept and Nbr: ELEC 62 Title: ELEC CIRCUIT THEORY

Full Title: Electronic Circuits Theory

Last Reviewed: 11/5/1997

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	4.00	Lab Scheduled	2.00	17	Lab Scheduled	35.00
		Contact DHR	1.00		Contact DHR	17.50
		Contact Total	6.00		Contact Total	105.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 210.00

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:**

The theory of operation of various electronic circuits, breadboarding selected circuits and measurements of selected parameters. These circuits include: power supply regulators, single and multistage amplifiers, filters, RC and LC oscillators, interstage coupling, amplitude and frequency modulation, single side-band and amplitude and frequency demodulation circuits.

**Prerequisites/Corequisites:**

Completion of ELEC 61, ELEC 61L, and ELEC 90B with a "C" grade or better or their equivalents; or ELEC 71B and ELEC 71BL with a "C" or better or their equivalents.

**Recommended Preparation:**

Concurrent Enrollment in ELEC 66A

**Limits on Enrollment:****Schedule of Classes Information:**

Description: Application of transistors, SCR's, FET's & integrated cir to electronic circuitry & systems. (Grade Only)

Prerequisites/Corequisites: Completion of ELEC 61, ELEC 61L, and ELEC 90B with a "C" grade or better or their equivalents; or ELEC 71B and ELEC 71BL with a "C" or better or their

equivalents.

Recommended: Concurrent Enrollment in ELEC 66A

Limits on Enrollment:

Transfer Credit:

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>		<b>Effective:</b>	<b>Inactive:</b>
<b>UC Transfer:</b>		<b>Effective:</b>	<b>Inactive:</b>

**CID:**

**Certificate/Major Applicable:**

Certificate Applicable Course

## **COURSE CONTENT**

### **Outcomes and Objectives:**

The student should be able to:

1. analyze and troubleshoot power supplies with Zener Diode Regulators.
2. calculate and measure the gain of vacuum tube and FET circuits.
3. calculate and measure the gain of stage and multistage BJT amplifier circuits with negative feedback.
4. troubleshoot BJT circuits with various types of bias.
5. calculate and measure the cutoff frequencies of various filters.
6. determine types and methods of feeding different oscillators by circuit analysis.
7. calculate and measure the frequency of RC and LC oscillators.
8. recognize different types of neutralization for RF amplifiers.
9. measure percent of modulation, and calculate power in side-bands of amplitude modulated signal.
10. calculate plate efficiency of modulator and modulated AM stages.
11. draw and explain the purpose of each stage in an AM and FM receiver and transmitter.
12. write the AM and FM broadcast band allocations.
13. differentiate between the advantages and disadvantages of AM and FM.

## Topics and Scope:

1. Zener diodes and power supply regulation.
2. Review of vacuum tubes and field effect transistors.
3. Review and continuation of BJT circuits to include upside down bias, CE, CB, and CC configurations, multistage amplifiers, and feedback.
4. High pass, low pass, band stop, and band pass filters.
5. RC, LC, and cavity oscillators, and piezoelectric effects.
6. Classes of amplification and frequency multiplication.
7. Coupling between stages.
8. RF amplifiers and neutralization.
9. Amplitude modulation, transmission, and reception.
10. Frequency modulation, transmission, and reception.
11. Superhetrodyne theory.

## Assignment:

Laboratory exercises on selected topics.

## 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, Lab reports, Quizzes, Exams

Problem solving  
10 - 25%

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

Class performances

Skill Demonstrations  
5 - 20%

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

Multiple choice, True/false, Matching items, Completion

Exams  
40 - 60%

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

ATTENDANCE AND CLASS PARTICIPATION

Other Category  
0 - 15%

**Representative Textbooks and Materials:**

06.01.09 CRC approved inactivation 4/27/09. mpuha