**I. COURSE TITLE:** Analog Circuits and Devices

**COURSE NUMBER:** 2215  **CATALOG PREFIX:** EENG

**II. PREREQUISITES:** EENG 1115 or equivalent

**III. CREDIT HOURS:** 3 **LECTURE HOURS:** 2

**LABORATORY HOURS:** 1(2 contact hrs) **OBSERVATION HOURS:** 0

**IV. COURSE DESCRIPTION:**

An introduction to the characteristics, specifications, packaging, and applications of discrete devices and low scale integrated circuits.

**V. GRADING:**

Grading will follow the policy in the school catalog.

|  |  |  |  |
| --- | --- | --- | --- |
| **A** | **90** | **–** | **100** |
| **B** | **80** | **–** | **89** |
| **C** | **70** | **–** | **79** |
| **D** | **60** | **–** | **69** |
| **F** | **0** | **–** | **59** |

**VI. ADOPTED TEXT(S):**

*Foundations of Electronic Circuits and Devices.*

5th edition,

By: Meade.

Thompson/Delmar, 2007

ISBN 1-4180-0537-1

**VII. LEARNING OBJECTIVES:**

1. Semiconductor properties\*
2. Diode applications\*
3. Special-purpose diodes\*
4. Bipolar junction transistors (BJTs)\*
5. BJT biasing circuits and stability\*
6. BJT amplifier circuits\*
7. Multistage amplifier design\*
8. Power amplifiers\*
9. Field effect transistors (FETs)\*
10. JFET and MOSFET biasing circuits\*
11. FET amplifier circuits\*
12. Frequency analysis\*
13. Thyristors and applications\*
14. Negative and positive feedback concepts\*
15. Oscillators\*
16. Op-Amps, circuits and applications\*
17. Electronically regulated power supplies\*

**VIII. COURSE METHODOLOGY**

Learning objectives will be taught by lectures, labs videos, plant visits or any method which is effective in teaching the material.

**IX. COURSE OUTLINE:**

**WEEK DESCRIPTION**  LAB/TESTS

1. CHAPTER 22

Semiconductor materials & P-N Junctions

1. CHAPTER 23

Diodes & Diode Circuits

1. CHAPTER 24

Power Supply Circuits Zener Lab

1. CHAPTER 24

Power Supply Circuits Power Supply lab

1. CHAPTER 24

Power Supply Circuits Power Supply Labs

1. CHAPTER 25

Bipolar Transistors Test CH 22-24

1. CHAPTER 25

Bipolar Transistors NPN Lab

8 CHAPTER 26

BJT Amplifier Circuits A & B Amplifier

9 CHAPTER 26

BJT Amplifier Circuits Test CH 25-26

10 CHAPTER 27

Field Effect Transistors FET Lab

11 Chapter 28

Operational Amplifiers Test CH 27

12 Chapter 28 Comparator Lab

Operational Amplifiers Inv& Non Inv LAb

13 Chapter 29

Oscillators & Multivibrators Test CH 28

14 Chapter 29 Weinbridge Lab

Oscillators & Multivibrators Test 29

15 Chapter 30

Thyristers SCR Labs

15 Chapter 30

Thyristers Test CH 30

16 **Final**

**X. OTHER REQUIRED BOOKS, SOFTWARE AND MATERIALS:**

Scientific calculator, $40 Lab Fee for instrumentation & materials

**XI. EVALUATION:**

Test = 40% - 10% for unexcused absences

Lab = 40% - 10% for unexcused absences

Final = 20%

**XII. SPECIFIC MANAGEMENT REQUIREMENTS:**

None

**XIII. OTHER INFORMATION**

**FERPA:** Students need to understand that your work may be seen by others. Others may see your work when being distributed, during group project work, or if it is chosen for demonstration purposes.

Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

**DISABILITIES:** Students with disabilities may contact the Disabilities Service Office, Central Campus, at 800-628-7722 or 937-393-3431.