DATE SUBMITTED: 9/11/08
DATE DICC APPROVED: 12/16/08
DATE LAST REVIEWED: 

CATALOG NO.: ETEC 220

COURSE INFORMATION FORM

DISCIPLINE: ETEC
COURSE TITLE: Analog Devices

CR.HR 4 LECT HR. 3 LAB HR. 2 CLIN/INTERN HR. CLOCK HR. 

CATALOG DESCRIPTION
This course covers semiconductor devices and their applications. Diodes, rectifiers, power supplies, limiters, clampers, voltage regulators, and transistors will be presented, along with various small and large signal and multistage amplifier circuits. This course covers field effect transistors, oscillators, trigger devices. Oscillator types include Hartley, Colpitts, RC Phase Shift, Sine Wave, Sawtooth, Blocking, Non-Sine Wave, and Transistor. Trigger devices covered include the SCR, DIAC, TRIAC, and UJT.

PREREQUISITES
ETEC 118

EXPECTED STUDENT OUTCOMES IN THE COURSE
Upon completion of this course, the student will be able to:

1. Identify junction diodes
2. Describe the reason for diode limiters and clampers
3. Explain transistor operation
4. Identify common emitter, common collector, and common base amplifier circuits
5. Identify the differences between multistage, RC coupled, push-pull, and FET amplifier circuits
6. Explain and troubleshoot half wave, full wave, and bridge rectifier circuits
7. Explain and troubleshoot power supply circuits
8. Describe voltage regulator operation
9. Explain how zener diodes and integrated circuits are used as voltage regulators
10. Demonstrate an understanding of the operation of voltage doublers
11. Describe the operation of a field effect transistor amplifier
12. Identify a MOSFET amplifier
13. Understand the operation of oscillator circuits including the Hartley, Colpitts, RC phase shift, crystal controlled.
14. Identify sine wave, blocking, non-sine wave, transistor, and Unijunction transistor oscillators
15. Describe the operation of trigger devices such as the Schmitt Trigger and SCR Trigger
16. Identify DIACS, TRIACs, 4 layer diodes, and UJTs
CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes will be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

Quizzes 1 – 8
Block Tests 4
Practice Exercises 1 – 16
Lab Experiments 1, 3 – 16

PROGRAM-LEVEL OUTCOMES ADDRESSED

General Education Outcomes
Specify which general education outcomes, if any, are substantially addressed by the course by completing the “Course/Program Assessment Matrix” to show the relationship between course and program outcomes and assessment measures.

Occupational Program Outcomes
Specify which occupational program outcomes, if any, are substantially addressed by the course by completing the “Course/Program Assessment Matrix” to show the relationship between course and program outcomes to assessment measures.
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Fundamentals of Solid State Principles
   A. Theory
   B. PN Junction

II. Diodes
   A. PN Junction Diodes
   B. Zener Diodes
   C. Light Emitting Diode
   D. Special Diodes
   E. Applications

III. Power Supplies & Voltage Regulators

IV. Transistor & Amplifiers
   A. Introduction to Amplifiers
   B. Common-Emitter Amplifiers
   C. Power Amplifiers
   D. Field Effect Transistors & Amplifiers
   E. Other BJT Amplifiers
   F. Applications

V. Introduction to Operational Amplifiers
   A. Inverting
   B. Non-inverting
   C. Other Operational Amplifiers
   D. Applications

VI. Passive and Active Filters

VII. Oscillators

VIII. Switching Circuits
   A. Basic Switching Circuits
   B. Schmitt Triggers
   C. Multivibrators