EE-3305
Circuit and Analysis Lab

Curricular Designation:  CpE: required EE: required

Catalog Description: Covers circuit design and analysis, and linear system applications Credits: 1.0 Lec-Rec-Lab: (0-0-2) Semesters Offered: Fall Spring Restrictions: Must be enrolled in one of the following Major(s): Computer Engineering, Electrical Engineering Pre-requisites: EE 2110 and EE 2304

Textbooks(s) and/or Other Required Materials:
None

Prerequisites by Topic:
Familiarity with lab safety procedures,
Familiarity with linear circuit analysis,
Familiarity with circuit elements, network theorems,
Familiarity with steady-state sinusoidal response,
Familiarity with transient response using Laplace transforms,
Familiarity with frequency response.

Course Objectives:
Design, simulation, fabrication and analysis of electronic systems using integrated circuits, passive components, and discrete devices such as diodes, op-amps, BJTs and MOSFETs.
Design experiments, implement, analyze and report results.
Topics Covered:

1. Design, execution and evaluation of system test plans, including experimental characterization of an unknown “black box” circuit.

2. Design and analysis of electronic circuits using operational amplifiers, including differentiators, integrators, oscillators; non-ideal characteristics of op-amps

3. Design and analysis of wave shaping circuits using diodes, diode applications, rectifiers

4. Design and analysis of electronic systems using Bipolar Junction Transistors, and Field-Effect Transistors

5. Hierarchical design and integration of subsystems into a complete system.

6. Technical report writing

7. Topics in Electrical and Computer Engineering; Oral presentation

Relationship of Course to Program Objectives (See UPAC SOP, Tables 1 and 2):

- **EE:**
  - Outcome: a via topic(s): (1-5)
  - Outcome: b via topic(s): (1-5)
  - Outcome: c via topic(s): (2-5)
  - Outcome: g via topic(s): 6, 7
  - Outcome: k via topic(s): (1-5)

- **CpE:**
  - Outcome: a via topic(s): (1-5)
  - Outcome: b via topic(s): (1-5)
  - Outcome: c via topic(s): (2-5)
  - Outcome: g via topic(s): 6, 7
  - Outcome: k via topic(s): (1-5)

Contribution of Course to Meeting the Professional Component

**EE:** Engineering Topics

**CpE:** Engineering Topics

Class/Laboratory Schedule (note: 1 hour = 50 minutes):

Instructional Lab: 30 hours = (1 session/week @ 2 hours/session) for 15 weeks

Prepared by:

Glen Archer, Lecturer, Oct 11, 2004