Department: Electrical and Computer Engineering

EEE 4301 — Electronic Circuits and System Design


Course (Catalog) Description: This course uses computer-aided design programs and covers multistage amplifier analysis and design. The course focuses on feedback and operational amplifiers, A-to-D and D-to-A converters, and waveshaping and waveforming generators, including oscillators, voltage regulators, and power circuits.

Prerequisite: EEE-3300

Textbooks/Required Material: Microelectronics Circuit Analysis and Design, Donald Neamen

Course Objectives:

1. Analyze and design an output stage and various classes of power amplifiers.
2. Understand, analyze, and design various operational amplifiers and related circuits.
3. Understand and analyze biasing and active load circuits.
4. Describe and determine the characteristics of differential amplifiers and multistage amplifiers.
5. Derive and determine the transfer function, the loop-gain, and the stability criteria of feedback circuits and systems.

Topics covered:

1. Output Stages and Power Amplifiers
2. Ideal Operational Amplifiers and Op-Amp Circuits
3. Integrated Circuit Biasing and Active Loads
4. Differential and Multistage Amplifiers
5. Feedback and Stability

Class Schedule: Three 50 minute or two 75 minute lectures per week (3 credit hours).

Subject Area: Engineering

Significant Design: Yes

Relationship to Assessed ABET Student Outcomes: None

Last Updated by: R.J. Perry Date: April 30th, 2021