University of Arkansas - Fort Smith
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General Syllabus

EET 3743 Discrete Electronics

Credit Hours: 3 Lecture Hours: 2 Laboratory: 2

Prerequisites: ELEC 1353 Electrical Circuits and Components, ELEC 1393 Solid State

Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

Application of discrete electronic devices and integrated circuits (ICs) in various environments such as laboratory equipment, motion equipment, and data acquisition.

B. Additional Information

This course will contain a practical element emphasizing designing, selecting, and implementing proper discrete and IC components. Projects and labs will be used to facilitate this outcome.

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Calculate AC gain.
2. Calculate input and output impedance.
3. Apply manufacturer's thermal and electrical constraints to circuit design.
4. Troubleshoot for failed components and model designed circuit using PSpice.
5. Design and build circuits using BJTs, MOSFETs, IGBTs, voltage regulators, diodes, and other passive elements.

B. University Learning Outcomes

This course enhances student abilities in the following areas:

Analytical Skills
Critical Thinking – Students will troubleshoot for failed components and design and build circuits.
Quantitative Reasoning – Students will calculate AC gain and input and output impedance

Communication Skills (written and oral)
Students will write detailed reports covering their design, construction, and testing of circuits built during lab sessions.

III. Major Course Topics

A. AC gain
B. Phase shift
C. Bode plots
D. Thermal properties
E. Impedance matching
F. Circuit modeling software