ECE 2201
Course Description & Learning Outcomes

Course Description

ECE 2201. MICROELECTRONIC CIRCUITS I.
Cat. I
This course is the first of a two-course sequence in electronic circuit design. It begins with a substantive treatment of the fundamental behavior of semiconductor materials and moves on to the semiconductor diode, the bipolar transistor, and the field-effect transistor. Laboratory exercises are provided to reinforce the theory of operation of these devices. Numerous circuit applications are considered, including: power supplies, transistor amplifiers, and FET switches. Topics include: the pn junction, diode operation, transducers, rectification, voltage regulation, limiting and clamping circuits, transistor operation, biasing, small-signal and large-signal models, transistors amplifiers, and switching applications**.**

Recommended background: ECE 2010 and ECE 2019

Learning Outcomes

Upon successful completion of this course, you should gain…

- An understanding of fundamental semiconductor physical concepts and the performance of the p-n junction.
- An understanding of diode operation and performance.
- An ability to analyze diode circuits and to design and implement diode applications.
- An understanding of field-effect transistor operation and performance.
- An ability to analyze field-effect transistor circuits and to design and implement field-effect transistor applications.
- An understanding of bipolar junction transistor operation and performance.
- An ability to analyze bipolar junction transistor circuits and to design and implement bipolar junction transistor applications.