

ECE 371

Materials and Devices

Overview

Course Catalog Description: Introduction to quantum mechanics, crystal structures, insulators, metals, and semiconductor material properties, bipolar, field effect, and light emitting devices.

Prerequisites: senior standing in a science or engineering department or permission of instructor

Textbook: Donald Neamen, *Semiconductor Physics and Devices*, 3rd Edition, McGraw Hill, 2003.

Class Goals: The objective of this course is to provide a basic for understanding the characteristics, operation, and limitations of semiconductor devices. In order to gain understanding, it is essential to have a thorough knowledge of the physics of the semiconductor material. The goal is to bring together quantum mechanics, the quantum theory of solids, semiconductor material physics, and semiconductor device physics. All of the components are vital to the understanding of both the operation of present day devices and any future development in the field.

Course Coordinator: Prof. Luke Lester

