MTSE-4070 ELECTRONIC MATERIALS

Spring 2012 Syllabus

Tuesdays 2:00-5:00 p.m. – Discovery Park, Room: D 207B,
Instructor: Professor El Bouanani Phone: 369-8109; E-mail: bouanani@unt.edu,
Office hours: open door policy or appointment via e-mail

Text Book:

Other useful references:
• Microchip manufacturing, by S. Wolf, ISBN: 0-9616721-8-8

PLAN OF STUDY

Elementary Concepts and Electrical Conduction


Semiconductors: Intrinsic and Extrinsic semiconductors, degenerate semiconductors, conductivity, recombination and minority carrier injection, Schottky Junctions and Ohmic Contacts.

Semiconductor Devices: Basics of a pn junction, Metal-Oxide-Semiconductor Field Effect Transistor (MOSFET), Thermoelectrics, Piezoelectrics, Light Emitting Diodes (LEDs), Solar Cells.

IC fabrication: Integrated-circuit types, Overview of semiconductor manufacturing, silicon wafer production, thin films depositions, diffusion and ion implantation, oxidation, plasma processing, lithography, interconnects,…

MIDTERM EXAMS: 03/6/2012 LOCATION: DP; D207B 2:00-5:00 PM
                      04/3/2012 LOCATION: DP; D207B 2:00-5:00 PM

FINAL EXAM (Comprehensive): 05/8/2012 LOCATION: DP; D207B 2:00-5:00 PM

GRADES: 30% Homework; 30% Midterm Exams; 40% Comprehensive Final

This is a preliminary course outline. The instructor may change material, course content, and course pace or item sequence at any time.