

Ram Seshadri MRL 2031, x6129

seshadri@mrl.ucsb.edu; <http://www.mrl.ucsb.edu/~seshadri/teach.html>

Introduction to Materials in Modern Technology

Materials play an enabling role in technological progress. They perform many functions. During this course, we will look at a number of materials classes, certain key elements of their atomic structures, and the links between properties, structure and processing.

The material here is mostly from the first chapter of Callister.

The properties of materials: Can be classified as one of mechanical, electrical, thermal magnetic, optical (and deteriorative ?) In some materials, these properties are intricately linked (multifunctionality).

The classification of materials: Callister choses to classify materials as:

- Metals
- Ceramics
- Polymers
- Composites
- Semiconductors
- Biomaterials

This classification will be discussed.

Modern materials needs: What makes a certain material fit for a certain task ?