PHY 436: Science of Materials  2 Units

Department of PHYSICS

Covenant University
1. **PHY436**

1.1. PHY 436: Science of Materials  2 Units

General introduction of materials, engineering requirements, mechanical properties of materials: tests to study stress, strain, ductility, hardness, toughness and fatigues. Crystal classes and system, macroscopic and microscopic investigations of materials by electron microscope and X-ray diffraction techniques; study of imperfections, vacancies, dislocations, stacking faults and grain boundaries, clip and twining effect of defects as properties of materials. Single and multi-phase materials, solide solutions, binary alloys, eutectics and non-eutectic mixtures, ferrous and non-ferrous metals, steel, polymers, classification, properties, fabrication, ceramic structure, composition, forming and shaping, stability of materials.