

AMMR-5 NATURE AND PROPERTIES OF MATERIALS

1. Atomic structure & bonding in solids, Crystal structures, Imperfection in solids,
2. Linear defects, Slip & plastic deformation, Planar defects, Volume defects,
3. Volume defects, Strengthening mechanisms, Diffusion,
4. Mechanical properties of metals, Phase diagram & phase transformation,
5. Phase equilibria involving solid to solid reactions, Structure & properties of ceramics & polymers Corrosion & degradation of materials,
6. Thermal properties, Magnetic properties,
7. Electrical properties & Optical properties of materials, Material Selection, Synthesis & Design.

Reference Books:

1. Materials Science and Engineering: An Introduction, W. D. Callister, (WILEY)
2. Materials Science and Engineering, V. Raghvan

