

ME353 Electronic Materials and Their Applications

Credit: 3-0-0-3

Approval: Approved in 2nd Senate

Prerequisite: Consent of the faculty member

Students intended for: B.Tech (III/IV)

Elective or Core: Elective

Semester: Odd/Even:

Course Outline:

This course covers the advanced aspects of electronic properties of materials and their applications. It includes materials for energy, **thermoelectric**, **ferroelectric**, dielectric, pyroelectric, piezoelectric, magnetic and optical applications. The advanced applications of electronic materials in various technologies will be emphasized, Detailed application of these materials, Caloric effect in materials. Linear and non-linear optical properties, materials and applications, Functional composite materials.

Text & Reference Books:

A. J. Moulson and J. M. Herbert, Electroceramics: Materials, Properties and Applications, Wiley; 2nd edition, 2003.

K. Uchino, Ferroelectric Devices, Marcel Dekker Inc. 2000.

Z. L. Wang and Z.C. Kang, Functional and Smart Materials ,Springer, 1998.

Charles Kittel Introduction To Solid State Physics, 2nd Edition, 2005.

Proposed by: Dr. Rahul Vaish

School: SE