



*Techno-Social Excellence*  
Marathwada Mitra Mandal's  
**INSTITUTE OF TECHNOLOGY (MMIT)**  
Lohgaon, Pune-411047.

“Mechanized Design Application”  
**Department of Mechanical Engineering**

**Course Name: Engineering Materials and Metallurgy**  
**Class: SE Mechanical Engineering**  
**Course Code: 202044 (2019 Pattern)**

**Course Objectives:**

1. To impart fundamental knowledge of material science and engineering.
2. To establish significance of structure property relationship.
3. To explain various characterization techniques.
4. To indicate the importance of heat treatment on structure and properties of materials.
5. To explain the material selection process.

**Course Outcomes:**

On completion of the course, learner will be able to

- CO1. COMPARE crystal structures and ASSESS different lattice parameters.  
CO2. CORRELATE crystal structures and imperfections in crystals with mechanical behaviour of materials.  
CO3. DIFFERENTIATE and DETERMINE mechanical properties using destructive and non-destructive testing of materials.  
CO4. IDENTIFY & ESTIMATE different parameters of the system viz., phases, variables, component, grains, grain boundary, and degree of freedom. etc.  
CO5. ANALYSE effect of alloying element & heat treatment on properties of ferrous & nonferrous alloy.  
CO6. SELECT appropriate materials for various applications.