

NOC: Nature and Property of Materials - Video course

COURSE OUTLINE

This course introduces to the basics of metals and metallic alloys, polymers, composites and smart materials which have extensively broadened the scope of engineering design in the fields of Civil, Mechanical, Aerospace and other structural applications.

After learning this course, students will be well-versed with the underlying principle governing the material properties and should be able to select proper material for their application

COURSE DETAIL

Week	Topics
1.	Module 1: Introduction to Engineering materials & Mechanical properties
2.	Module 2: Atomic bonding and crystal structure
3.	Module 3: Metals and Ceramics
4.	Module 4: Polymers
5.	Module 5: Composite Materials
6.	Module 6: Materials selection for Engineering design
7.	Module 7: Intelligent Materials
8.	Module 8: Non-mechanical properties



NP-TEL

NPTEL

<http://nptel.ac.in>

Mechanical Engineering

Pre-requisites:

Basic Physics and Mathematics Courses at the First Year Level, added with thirst for learning.

Coordinators:

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References:

1. Material Science and Engineering: An Introduction by W.D. Callister, Wiley publication.
2. Engineering materials: Michael F. Ashby and David Jones, Elsevier publication
3. Materials selection in Mechanical design by Michael F. Ashby, Elsevier publication
4. Mechanics of Composite by Materials Robert M. Jones, Taylor & Francis publication.
5. Smart Structures Theory by Inderjit Chopra & Jayant Sirohi, Cambridge press