

II YEAR I SEM

15AME10-MATERIAL SCIENCE AND MECHANICS OF SOLIDS LAB

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Course Objectives: The object of the course to make the student

- To understand the Microstructure of Engineering Materials.
- To Identify the Grain Boundary layers and Grains size of Different Engineering Materials.

(a) Material Science Lab

1. Preparation and study of the Micro Structure of pure metals like Iron, Cu and Al.
2. Preparation and study of the Microstructure of Mild steels, low carbon steels, high – Carbon steels.
3. Study of Micro Structures of Cast Irons.
4. Study of Micro Structures of Non-Ferrous alloys.
5. Study of Micro structures of Heat treated steels.
6. Hardeneability of steels by Jominy End Quench Test.
7. To find out hardness of various treated and untreated steels.

(b) Mechanics Of Solids Lab

Objective: The object of the course to make the student to understand the behaviour of materials under different types of loads.

List Of Exercises :

1. Tension test.
2. Torsion test.
3. Hardness test.
4. Shear test.
5. Spring test (compression & Expansion).
6. Izod test.
7. Charpy test

List Of Major Equipemnt:

1. UTM for conducting tension test on rods
2. Torsion testing machine
3. Brinnell's/Rock well's hardness testing machine.
4. Shear testing machine
5. Spring testing machine
6. IZod testing machine.

Course Outcomes:

After completion of this course the student can be able to

- Do the research on materials to develop the new Materials
- Apply the new materials on real applications
- Know the usage of materials in Design area.

Handwritten Signature
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