

MATERIALS ENGINEERING LABORATORY

A. Mechanics of Solids

OBJECTIVES:

- To apply loads on various materials under different equilibrium conditions.
- To perform tests on materials in tension, compression, torsion, bending and impact.
- To analyze test data and present the results in a professionally prepared report.
- To learn the use of machines and equipment to determine experimental data. Machines include UTM, impact tester, torsion equipment, spring testing machine, compression testing machine, hardness tester etc.

LIST OF EXPERIMENTS:

1. Universal Testing Machine
2. Simply Supported Beam
3. Cantilever Beam
4. Torsion Testing Machine
5. Brinell's Hardness Testing Machine
6. Rockwell's Hardness testing Machine
7. Spring testing Machine
8. Impact testing Machine(Charpy/Izod)
9. Punch shear attachment

FACILITY FOR ADDITIONAL EXPERIMENTS:

1. Continuous beam experiments
2. Use of electrical strain gauges



B. Metallurgy

OBJECTIVES:

- To understand the preparation and study of micro structures of pure metal Fe, Cu, Al.
- To get the knowledge of microstructures of different types of ferrous and non-ferrous alloys.
- To study the microstructures of heat treated steels.
- To gain knowledge of hardenability of steels.

LIST OF EXPERIMENTS:

1. Preparation and study of the Micro Structure of pure metal Fe.
2. Preparation and study of the Micro Structure of pure metal Cu.
3. Preparation and study of the Micro Structure of pure metal Al.
4. Preparation and study of the Microstructure of Mild steels.
5. Preparation and study of Microstructure of low carbon steels
6. Preparation and study of the Microstructure of high carbon steels.
7. Study of the Micro Structures of Cast Irons.
8. Study of the Micro Structures of Copper Alloys.
9. Study of the Micro Structures of Aluminum Alloys.
10. Study of the Micro structures of Heat treated steels.
11. Hardenability of steels by Jominy End Quench Test.
12. To find out the hardness of various heat treated steels

