



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

## DEPARTMENT OF MECHANICAL ENGINEERING

### MATERIALS AND SOLID MECHANICS LABORATORY

In this laboratory, students will have the opportunity to apply loads to various materials under different equilibrium conditions. The student will perform tests on materials in tension, compression, torsion, bending, and impact. These conditions and/or constraints are designed to reinforce classroom theory by having the student perform required tests, analyze subsequent data, and present the results in a professionally prepared report. The machines and equipment used to determine experimental data include universal testing machines, torsion equipment, spring testing machine, compression testing machine, impact tester, hardness tester, etc. Data will be collected using Dial indicators, extensometers, strain gages and strain indicator equipment, as well as load and strain readouts on the machinery and graphing capabilities to print relevant plots for analysis. This laboratory also equipped to examine microstructure of ferrous and nonferrous materials and comparing with the ASME Grain Size Measurement.

#### List of Equipment

S. No	Item	Make	Quantity	Cost per Unit (Rs.)	Total Cost (Rs.)
1	Jomney end Quench Test Rig	Metsonic	1	19,800	19,800
2	Trinocular with Video Camera	Metz	1	77,300	77,300
3	Mounting Press	Metsonic	1	18,000	18,000
4	Cut off Machine	Metsonic	1	25,000	25,000
5	Belt Polisher	Metsonic	1	8,100	8,100
6	Muffle Furnace	S V Heating	1	14,400	14,400
7	Rockwell Hardness Test	Hitech India	1	25,750	25,750
8	Specimen Leveler	Metsonic	1	1,600	1,600
9	Spicemen Dryer	Metsonic	1	1,850	1,850
10	Metallurgical Micro Scope	Metz	5	12,600	63,000
11	Disc Polisher	Metsonic	2	23,400	46,800
12	13ASME Grain Size Measurement 1014X Eye Piece	Metsonic	1	25,750	25,750
13	Cantilever Beam	Hitech India	2	12,250	24,500
14	Universal Testing Machine (40 Tons Capacity)	Krystal	1	2,45,000	2,45,000
15	Torsion Testing Machine (10kgm Capacity)	Krystal	1	86,500	86,500
16	Hardness Testing Machine Brinell Cum Rockwell	Hitech India	1	25,750	25,750
17	Impact Tester (0 - 168 Joiles (Izod)) (0-300 Joules (Charpy))	Krystal	1	47,500	47,500
18	Shear Testing Attachment	Krystal	1	24,000	24,000
19	Spring Testing Machine	Krystal	1	47,500	47,500
20	Computerized Universal Testing Machine (40 Tons Capacity)	Krystal	1	4,60,000	4,60,000
21	Mechanical Extensometer	Krystal	1	26,000	26,000
Total Cost (Rs.)					13,14,100
In words: Rupees Thirteen lakhs fourteen thousand one hundred only					