



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	Computerized Universal Testing Machine (40 Tons Capacity)	Krystal	1	4,60,000	4,60,000
2	Universal Testing Machine (40 Tons Capacity)	Krystal	1	2,45,000	2,45,000
3	Torsion Testing Machine (10kgm Capacity)	Krystal	1	86,500	86,500
4	Trinocular with Video Camera	Metz	1	77,300	77,300
5	Metallurgical Micro Scope	Metz	5	12,600	63,000
6	Impact Tester (0 - 168 Joiles (Izod)) (0-300 Joules (Charpy))	Krystal	1	47,500	47,500
7	Spring Testing Machine	Krystal	1	47,500	47,500
8	Disc Polisher	Metsonic	2	23,400	46,800
9	Mechanical Extensometer	Krystal	1	26,000	26,000
10	13ASME Grain Size Measurement 1014X Eye Piece	Metsonic	1	25,750	25,750
11	Hardness Testing Machine Brinell Cum Rockwell	Hitech India	1	25,750	25,750
12	Rockwell Hardness Test	Hitech India	1	25,750	25,750
13	Cut off Machine	Metsonic	1	25,000	25,000
14	Cantilever Beam	Hitech India	2	12,250	24,500
15	Shear Testing Attachment	Krystal	1	24,000	24,000
16	Jomney end Quench Test Rig	Metsonic	1	19,800	19,800
17	Mounting Press	Metsonic	1	18,000	18,000
18	Muffle Furnace	S V Heating	1	14,400	14,400
19	Belt Polisher	Metsonic	1	8,100	8,100
Total Cost (Rs.)					13,10,650
<i>In words: Rupees Thirteen lakhs fourteen thousand one hundred only</i>					

HOD, ME