



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal - 500 043, Hyderabad, Telangana

Civil Engineering

Strength of Materials laboratory

Strength of Materials Laboratory offers a dynamic and interactive environment where theory meets practice. Through hands-on experimentation, you'll develop a deeper understanding of material properties and their significance in engineering applications.

- 1. Equipment Setup:** The Strength of materials laboratory offers a wide range of equipment for conducting experiments like Universal Testing Machine (UTM) for applying tensile, compressive, and bending loads. Measurement instruments like strain gauges and extensometers. Safety equipment including personal protective gear and emergency stop buttons.
- 2. Facility Infrastructure:** This laboratory provides adequate space with designated areas for testing and specimen preparation. Controlled environmental conditions for consistent testing, including temperature and humidity regulation. Access to power sources, ventilation systems, and safety features such as emergency exits and fire extinguishers.
- 3. Equipment Accuracy Assurance:**
 - **Regular Calibration:** Implement a schedule for routine calibration of testing machines and measurement instruments to ensure accuracy and reliability of results.
 - **Verification Procedures:** Develop verification procedures to confirm the accuracy of equipment before each testing session or experiment.
 - **Quality Control Measures:** Implement quality control measures such as standardized testing procedures, sample verification, and data validation to minimize errors and maintain equipment accuracy.

4. Laboratory Equipment:

S. No	Item		Make	No of Units	Cost of Unit (in Rs/-)	Total Cost (in Rs/-)
1	Universal testing machine (40T)		Hitech India	1	2,45,000	6,30,000
			Hitech India	1	3,85,000	
2	Torsion testing machine		Hitech India	1	86,500	3,11,500
			Hitech India	1	2,25,000	
3	Spring testing machine (2500N capacity)		Hitech India	1	47,500	2,22,500
			Hitech India	1	1,75,000	
4	Impact tester	Izod (0-168Joules) Charpy (0-300Joules)	Hitech India	1	47,500	1,52,500
		Izod & Charpy (0-300Joules)	Hitech India	1	1,05,000	

S. No	Item		Make	No of Units	Cost of Unit (in Rs/-)	Total Cost (in Rs/-)
5	Hardness test	Brinell cum Rockwell hardness	Hitech India	1	25,750	1,49,750
		Brinell hardness tester(3000kg capacity)	Hitech India	1	72,000	
		Rockwell cum Brinell hardness(250 kg capacity)	Hitech India	1	52,000	
6	Shear test attachment		Hitech India	1	11,000	35,000
			Hitech India	1	24,000	
7	Deflection of beam apparatus	Cantilever beam	Hitech India	1	24,500	36,539
		Simply supported beam	Hitech India	2	12,039	
8	Brinell test attachment		Hitech India	1	11,000	11,000
9	Mechanical Extensometer		Hitech India	1	26,000	26,000
10	Computerized Universal testing machine (40T capacity)		Hitech India	1	4,60,000	4,60,000
11	PC based electronic panel for computerized UTM		Hitech India	1	1,40,000	1,40,000
12	Electronic Extensometer 25/50 mm		Hitech India	1	1,25,000	1,25,000
13	Compression testing machine		Hitech India	1	1,67,738	3,57,738
			Hitech India	1	1,90,000	
14	Continuous beam setup		Arvind Engineering	1	18,000	18,000
15	Electrical resistance guage		Arvind Engineering	1	16,000	16,000

HOD

