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Department of Mechanical Engineering
Strength of Materials Laboratory Equipment Details

S.No	Name of the equipment	Description of the equipment	Quantity
1	Compression testing machine	Compression Testing Machine is a hydraulic, electrically operated unit, designed for conducting compression tests on concrete and metal specimens up to 20 cm. Diameter (or width and depth) and 30 cm, in height and also rocks and various other materials.	01
2	Rockwell hardness testing machine	The Rockwell hardness machine utilizes steel ball and indicates hardness by determining the depth of penetration of the indenter under a known load.	01
3	Brinell hardness testing machine	Brinell hardness testing machine which has a hardened steel ball (indenter) is pressed into test specimen under standardized load. Brinell hardness tests are used to determine hardness of metallic materials, to check quality level of products, for uniformity of samples of metals, for uniformity of results of heat treatment.	01
4	Spring test machine with compression and tension attachment	Spring testing machine enable load deflection tests of tension and compression springs to be carried out accurately and quickly. To determine the stiffness of the spring and strain energy stored in it.	01
5	Impact testing machine	The Impact testing machine is used to find the resistance to failure of a material to a suddenly applied force. The test measures the	01

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		impact energy, or the energy absorbed prior to fracture. The available impact testing machines are: Charpy Test Izod Test	
6	Torsion testing machine	Torsion Testing Machine is used for conducting torsion and twist on various metal wires, tubes, sheet materials.	01
7	Universal tensile testing machine	A Universal Testing Machine(UTM) also known as a materials testing machine and it can be used to test the tensile strength ,compressive strength and to draw stress Vs strain diagram.	01
8	Hydraulic mounting press	Hydraulic mounting press is used to prepare the metallographic sample to identify the structure of metals in the microscope.	01
9	Inverted metallurgical microscope	It is to examine the microscopic structures that affect the behaviour of metals (Thin plates, foils and sheets) using Metal plus software and to estimate the grain size, nodularity, phase volume fraction of the given specimen. A well manufactured material can be made more resistant to virtually any source of potential failure, including corrosion, for the use of metals and alloys in manufacturing and engineering.	01
10	Muffle furnace	A muffle furnace is a furnace with an externally heated chamber, the walls of which radiantly heat the contents of the chamber, so that the material being heated has no contact with the flame. It is used to test the characteristics of materials at extremely high and accurate temperatures.	01

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11	Universal wood testing machine	It is used for conducting variety of tests including Compression (Parallel-to-Grain), Shear Strength, Hardness (Janka Ball Test), Cleavage, Static Bend, Plywood Grips, Nail/Screw withdrawal Test and many other tests on Wood etc.,	01
12	Hydraulic Press 20 Ton capacity	To draw the formability limit diagram ,to find strain hardening exponent, to carry out cold extrusion process, to carry out sheet metal operations.	01
13	Rolling Mill	To study the cold rolling processes.	01
14	Fatigue Testing	To find out fatigue failure of the materials and their endurance limit after'N' Number of cycles	01
15	Erichsen Cupping test	To find the formability of sheet metals	01
16	Planetary Ball mill	<="" p="" style="box-sizing: border-box;">	01
17	Polishing Machine	To polish the metallic samples so as to enable them to keep under metallurgical microscopic examination	01
18	Metallurgical microscope	To study the microscopic evaluation of the metallic materials.	01
19	Micro Vickers hardness Tester	To examine the Micro Vickers hardness number of the given plates, sheets, foils under the load of 10gmf-20Kgf.	01
20	Brinell Microscope	To measure the indentation at its largest diameter against the reticle scale. Use this measurement and convert to its Brinell Hardness Number (BHN)	01