COURSE TITLE : MATERIAL TESTING LAB

COURSE CODE : 6018
COURSE CATEGORY : P
PERIODS/WEEK : 3
PERIODS/SEMESTER: 45
CREDITS : 2

TIME SCHEDULE

Module	Topics	Period
1	Tests on mild steel Tests on brass	27
2	Tests on timber Tests on spring Test on brick	18
TOTAL		**45**

COURSE OUTCOME

Sl.	Sub	Student will be able to
1	1	Determine the mechanical properties of mild steel, brass ,timber ,spring and clay brick.

SPECIFIC OUT COME

1.1 Conduct tension test on 'Steel' rods of different grade and find the yield stress, ultimate stress, breaking stress and young's modulus of steel:[IS 1608-1972; IS 432-1966]

1.2 Conduct compression test on clay bricks of standard size and specification and calculate the compressive stress of the same;{ IS 3495- 1992-PART-1]

1.3 Conduct Izod and Charpy impact tests on respective standard specimens of steel and find the energy required to break the same [IS 1499-1977; IS1598- 1977; IS 3766-1966]

1.4 Conduct Brinell and Rockwell hardness tests on the standard specimens and calculate thehardness numbers of respective items.[IS 1500- 1968; IS 1586-1968; IS 3804-1966]

1.5 Conduct torsion test on a mild steel and a brass rods and plot the graph 'torque' against 'angle of twist in radians'. From the graph calculate modulus of rigidity of the materials; steel and brass:

1.6 Conduct bending test on wooden beams and plot a graph 'load' against 'deflection' and from the graph find the young's modulus of wood. Also find the max, fiber stress at Breaking point:[IS 1708-1969; IS 883- 1970]

1.7 Conduct compression test on wood; and find the permissible compressive stress of wood allowing a factor of safety '2'

1.8 Conduct double shear test on steel and brass rods and calculate the respective shear stress Capacities[IS 5242 -1969]

1.9 Conduct loading tests on ;open coiled and closed coiled helical springs and plot graph 'load' against, 'deflection' and calculate the modulus of rigidity of material of springs by using the graph

1.10 Conduct deflection test on steel and brass beams and calculate the young's module of the two materials by drawing graphs "load" against 'deflection'

1.11 Conduct water absorption test on clay brick and find the % water absorbed by it after 24 hours of dipping in water. Compare the value with IS specification [IS 3475- 1992-PART-2; IS 1077-1992]

CONTENT DETAILS

1. Tension test on "MS/Torsteel" rod
2. Compression test on clay brick
3. Impact tests – Izod and Charpy
4. Hardness tests – Brinell and Rock well
5. Torsion test – M.S. and Brass rods
6. Bending test on wooden beams
7. Compression test on wood
8. Shear test on steel rods and brass rods
9. Test on springs – Open coiled and close coiled
10. Deflection test on beams
11. Water absorption test on clay brick