

**COURSE TITLE : MATERIAL TESTING LABORATORY**  
**COURSE CODE : 4028**  
**COURSE CATEGORY : A**  
**PERIODS/ WEEK : 3**  
**PERIODS/ SEMESTER : 45**  
**CREDIT : 2**

**TIME SCHEDULE**

MODULE	TOPIC	PERIODS
1	Test on UTM	13
2	Test on Impact and Hardness testing machine	14
3	Test on Spring	14
4	Test on Welded joint and Brittle material	14
TOTAL		45

**COURSE OUTCOME :**

Sl.No.	Sub	Student Will Be Able To
1	1	Carryout test on UTM
	2	Conduct Impact test.
	3	Carryout torsion test
	4	Perform Spring test
	5	Comprehend the test on welded joint.
	6	Understand the test on brittle material.

**SPECIFIC OUTCOME**

**MODULE I**

- 1.1 Study UTM & and its various uses.
- 1.2 Conduct Tension test on M.S. bar:
- 1.3 Compute the values yield point stress, ultimate stress, percentage elongation, and percentage reduction in cross sectional area. Young's modulus,
- 1.4 Study the behavior by plotting various graphs. Drawing stress strain graph.

**MODULE II**

- 2.1 Study of Impact Testing Machine.
- 2.2 Conduct Impact test: To find out impact values (Izod) of M.S bar specimen. Compute the values.
- 2.3 Conduct Charpy test of MS bar specimen. Compute the values.

- 2.4 Study the Brinnell testing Machine and its use:
- 2.5 To find Brinnell hardness values of M.S. bars.
- 2.6 To find Brinnell hardness values of aluminum.
- 2.7 Study Rock well hardness testing Machine.
- 2.8 Find out Rockwell hardness values of M.S. bars and Find out Rockwell hardness values of Aluminum.
- 2.9 Conduct Bending test on steel beam
- 2.10 Find out Young's modulus of steel by drawing deflection Vs load curve
- 2.11 Study Shear testing Machine and its use.
- 2.12 Find ultimate shear stress by conducting double shear test on MS bar
- 2.13 Study Torsion testing Machine and its use
- 2.14 Find modulus of rigidity, angle of twist and torque
- 2.15 Plot graph angle of twist Vs torque
- 2.16 Find modulus of rigidity of steel wire from number of oscillation and torque

### **MODULE III**

- 3.1 Find out modulus of rigidity of the material of the spring (both compression and tension)
- 3.2 Draw deflection Vs load graph

### **MODULE IV**

- 4.1 Tension test on welded joint - Determine ultimate strength of lap and butt joint and the ultimate stress of the joint.
- 4.2 Determine the compressive strength of brittle material using UTM.