

16CE205 MATERIAL TESTING LABORATORY

Hours Per Week :

L	T	P	C
-	-	3	2

Total Hours :

L	T	P	WA/RA	SSH/HSB	CS	SA	S	BS
-	-	45	20	48	6	12	3	5



Course Description and Objectives:

The course provides methods to evaluate the mechanical and physical properties of steel, wood and cement by conducting various experiments. The objective is to give students hands on experience in testing of engineering material and analysis of experimental results.

Course Outcomes:

The student will be able to:

- find the Young Modulus, torsional strength, hardness and tensile strength of given specimens
- determine impact value and crushing value of coarse aggregates
- calculate the compressive strength of concrete cubes and bricks
- find the physical properties of given coarse aggregate, fine aggregate and cement samples

SKILLS:

- ü *Test the tensile strength of steel.*
- ü *Test the cement quality.*
- ü *Determine the strength of concrete cube.*
- ü *Findout workability of concrete.*

ACTIVITIES:

- 0 Study of characteristics of HYSD bars
- .0 Testing of initial and final setting time of cement.
- 0 Finding the impact resistance of the given materials.
- 0 Compressive strength of Cement.

Note: A minimum of nine (09No) shall be done and recorded.

1. To study the stress-strain characteristics of HYSD bars by UTM.
2. To find young's modulus of the given material (steel or wood) by conducting bending test on simply supported beam.
3. To find modulus of rigidity by conducting torsion test on solid circular shaft.
4. To find the hardness of the given material by Brinnel's or Vickers hardness tester.
5. To find impact resistance of the given material by conducting Charpy test on Impact testing machine.
6. To determine the ultimate shear strength of steel rod in single and double shear.
7. To determine the modulus of rigidity of the spring.
8. Normal consistency and Initial setting and final setting time of cement
9. Fineness of cement.
10. Compressive strength of Cement.
11. Slump cone test to determine workability of concrete.