Course Type	Course Code	Name of Course	L	T	P	Credit
DP	CEC204	Material Testing Laboratory	0	0	2	2

Course Objective
The objective of the course is to conduct various tests and evaluate the engineering characteristics of building/construction materials by laboratory procedures.
Learning Outcomes
Upon successful completion of this laboratory, students will: • Be able to perform the laboratory tests on different construction materials • Able to compute and analyze the results of the respective laboratory tests

Experiment No.	Experiments to be Covered	Laboratory	Learning Outcome
1	**Water content and Specific Gravity of Soil:** Oven dry method; Specific gravity by density bottle.	1	Water content and specific gravity determination of soils.
2	**Particle Size Analysis of Soil:** Dry sieve analysis	1	Grain size distribution of given coarse grain soil samples.
3	**Particle Size Analysis of Soil:** Hydrometer analysis	1	Grain size distribution of given fine grain soil samples.
4	**Tests on Aggregates:** Specific gravity of fine and coarse aggregates	1	Determine the specific gravity of fine and coarse aggregates.
5	**Tests on Aggregates:** Bulking of fine aggregate, Fineness modulus of fine and coarse aggregates	1	Bulking and fineness modulus of fine and coarse aggregates
6	**Tests on Cement:** Specific gravity, Fineness, Consistency, Initial setting time, Final setting time and Soundness of cement	1	Tests on basic properties of cement
7	**Workability of Concrete:** Slump Cone test, Compaction factor/Vee-Bee consistometer tests	1	Evaluate the workability of given concrete.
8	**Strength of Cement and Concrete:** Compressive strength of cement, Compressive strength of concrete, and Split tensile strength of concrete	1	Strength properties of cement and concrete.
9	**NDT of Structures:** Non-destructive testing of concrete/structures by rebound hammer, etc.	1	Perform the non-destructive testing on concrete structures
10	**Tests on Bricks:** Compressive strength of bricks, and Water absorption of bricks	1	Strength and water absorption of bricks
11	**Project, Revision and Evaluation**	4	Project on testing of materials

Textbooks/References:

1. Respective Bureau of Indian Standard/ International Standard Codes of Practices.
2. Bowles, J.E. (2012). Engineering Properties of Soil and their Measurement, 4th Edition, McGraw Hill (India) Publishers.
3. Purushothama, R. (2017). Testing Methods for Civil Engineering Materials, New Age International Publishers.