19CE3454- CONSTRUCTION MATERIALS & CONCRETE TECHNOLOGY LAB

Course Category:	Program Core	Credits:	1.5
Course Type:	Laboratory	Lecture-Tutorial-Practical:	0-0-3
Prerequisites:	19BS1101 – Engineering Mathematics – I 19BS1102 -Chemistry of Materials	Continuous Evaluation:	25
		Semester End Evaluation:	50
		Total Marks:	75

Course Outcomes

Upon successful completion of the course, the student will be able to:

CO1	**Assess** the different properties of Cement	K3
CO2	**Determine** the different properties of aggregates	K3
CO3	**Describe** the preparation of green concrete	K2
CO4	**Summarizes** the concept of workability and testing of concrete	K4
CO5	**Demonstrate** the properties of hardened concrete	K2

Contribution of Course Outcomes towards achievement of Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1				3					3			3	3	
CO2				3					3			3	3	
CO3				3					3			3	3	
CO4				3					3			3	3	
Avg.				3					3			3	3	

1- Low **2-Medium** **3-High**

Course Content

Experiment No.1	Tests on Cement - Determination of fineness and consistency of cement.	CO1
Experiment No.2	Tests on Cement - Determination of setting time of cement	
Experiment No.3	Tests on Cement - Determination of specific gravity of cement	
Experiment No.4	Tests on Cement - Determination of compressive strength of cement	
Experiment No.5	Tests on Aggregates-Determination of fineness modulus of fine aggregate and coarse aggregate	CO2
Experiment No.6	Tests on Aggregates-Determination of specific gravity of fine aggregate and coarse aggregate.	
Experiment No.7	**Mix proportioning and conducting trial mixes** 1. Determine the mix proportions of materials for a particular grade of concrete as per IS 10262. 2. Conducting trials for M20, M30 and M40 grades of Concrete	CO3
Experiment No.8	**Tests on Fresh Concrete -** Determination of workability of concrete by slump cone test.	CO4
Experiment No.9	**Tests on Fresh Concrete -** Determination of workability of concrete by compaction factor apparatus.	
Experiment No.10	**Tests on Hardened Concrete -** Determination of compressive strength of concrete.	CO5
Experiment No.11	**Tests on Hardened Concrete -** Determination of split tensile strength of concrete	
Experiment No.12	**Tests on Hardened Concrete -** Determination of modulus of rupture of plain concrete beam.	
Experiment No.13	Demonstration of Rebound Hammer test and Ultrasonic Pulse Velocity Test	

Learning Resources

Text Books & Reference Manuals	1. Concrete Technology Lab Manual by Dept. of CE, PVPSIT 2. Determination of fineness and consistency of cement. IS 4031(Part 4) & IS 4031(Part 1) 3. Determination of setting time of cement. IS 4031(Part 5) 4. Determination of specific gravity of cement (IS:4031-PART 11) 5. Determination of compressive strength of cement. IS 4031(Part 6) & IS 4031(Part 7) 6. Determination of fineness modulus of fine aggregate and coarse aggregate IS:383 7. Determination of specific gravity of fine aggregate and coarse aggregate. IS:2386 (Part 3) 8. Determine the mix proportions of materials for a particular grade of concrete as per IS 10262. 9. Determination of workability of concrete by slump cone test. **IS: 1199** 10. Determination of workability of concrete by compaction factor apparatus. **IS: 1199** 11. Determination of compressive strength of concrete. IS 516. 12. Determination of split tensile strength of concrete. IS 5816. 13. Determination of modulus of rupture of plain concrete beam. IS 516. 14. M. S. Shetty, Concrete Technology, S Chand Publications.
Reference Books	1. M. L. Gambhir, Concrete Technology, Mcgraw Hill Education.
e-Resources& other digital material	1. http://jntuk-coeerd.in/