

CONCRETE TECHNOLOGY LABORATORY

V Semester: CE								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P		C	CIA	SEE
ACEB16	CORE	-	-	2	1	30	70	100
		Practical Classes: 24			Total Classes: 24			
Contact Classes: Nil		Tutorial Classes: Nil						
I. COURSE OVERVIEW:								
Concrete technology laboratory course emphasizes the practical aspects of the latest developments in the field of concrete construction. It focuses the latest Indian standard specifications and codes, which regulates the concrete construction. The laboratory course covers the properties of concrete and its constituent materials, the role of various admixtures in modifying these properties to suit specific requirements, such as ready mix concrete, reinforcement detailing, disaster-resistant construction, concrete machinery and it also enable the students to acquire knowledge on special and new generation concrete with their applications.								
II. COURSE OBJECTIVES:								
The course should enable the students to:								
I The fundamental properties of construction materials like cement, aggregates and admixtures based on laboratory and field tests for identifying material quality.								
II The factors influencing workability and methods involved in measuring workability of fresh concrete.								
III The importance of water/cement ratio and its influence on compressive strengths of hardened concrete.								
IV The concept of quality control and design of concrete mix for ensuring quality of concrete.								
III. COURSE OUTCOMES:								
After successful completion of the course, students should be able to:								
CO 1	Recall the basic properties of cement and aggregates for determining their suitability through various laboratory tests.						Remember	
CO 2	Determine physical and chemical properties of cement in laboratory for deciding its suitability in construction practice.						Evaluate	
CO 3	Determine the specific gravity of cement for estimating quantity in mix design.						Evaluate	
CO 4	Examine the fineness modulus of aggregates and bulking of sand for producing good quality concrete.						Analyze	
CO 5	Measure the workability of fresh concrete for identifying the condition of plastic concrete.						Evaluate	
CO 6	Determine Compressive strength of cement concrete for accepting in construction practice.						Evaluate	
Week – 1	INTRODUCTION TO CONCRETE TECHNOLOGY							
Introduction to concrete technology laboratory. Do's and Don'ts in concrete lab								
Week – 2	FINENESS OF CEMENT							
Fineness of cement								
Week – 3	NORMAL CONSISTENCY OF CEMENT							
Normal consistency of cement								
Week – 4	INITIAL AND FINAL SETTING TIMES OF CEMENT							
Initial and final setting times of cement								
Week – 5	SPECIFIC GRAVITY OF CEMENT							
Specific gravity of cement								

Week – 6	COMPRESSIVE STRENGTH OF CEMENT
Compressive strength of cement	
Week – 7	SOUNDNESS OF CEMENT
Soundness of cement	
Week – 8	FINENESS MODULUS OF FINE AND COARSE AGGREGATE
Fineness modulus of fine and Coarse Aggregate	
Week – 9	BULKING OF SAND
Bulking of sand	
Week – 10	WORKABILITY TESTS ON FRESH CONCRETE
Workability tests on fresh concrete	
Week – 11	TEST FOR COMPRESSIVE STRENGTH OF CEMENT CONCRETE
Test for compressive strength of cement concrete.	
Week – 12	REVISION
Revision	
Reference Books	
<ol style="list-style-type: none"> 1. Hemanthsood and LN Mittal, “Laboratory Manual on Concrete Technology”, CBS Publishers Pvt. Ltd., New Delhi, 2nd Edition, 2013. 2. Khanna S.K and Justo C.E.G., “Pavement Materials and Testing” Tata McGraw Hill Education, 2012s. 	
Web References:	
<ol style="list-style-type: none"> 1. https://nptel.ac.in/courses/105102012/ 	
E-Text Books:	
<ol style="list-style-type: none"> 1. https://www.emiliaecarlo.it/2018/20/03/concrete-technology-textbook-free-down/ 2. https://www.pdfdrive.com/concrete-technology-2nd-edition-book-d18823000.html 	