Techno India NJR Institute of Technology

Course File

CONCRETE LAB (4CE4-25)

For Techno India NJR Institute of Technology
पंकज पोरवाल
Dr. Pankaj Kumar Porwal
(Principal)

(Assistant Professor)

Department of CE

RAJASTHAN TECHNICAL UNIVERSITY, KOTA
SYLLABUS
II Year-IV Semester: B.Tech. (Civil Engineering)

4CE4-25: CONCRETE LAB

Credit: 1.5 **Max. Marks: 100**

(IA:60, ETE:40) 0L+0T+3P

1. To determine the fineness of Cement by Blaine's air permeability test.
2. To determine the flexural strength of Concrete.
3. To determine Soundness of cement by Le-chatelier apparatus.
4. To determine the specific gravity of fine aggregate (sand) by Pycnometer.
5. To determine the bulking of fine aggregate and to draw curve between water content and bulking.
6. Sieve analysis of coarse aggregates and fine aggregates.
7. To determine the workability of given concrete mix by slump test.
8. To determine the optimum dose of super plastsizers by Flow table test.
9. To design concrete mix of M-20 grade in accordance with I S 10262.
10. To design concrete mix of M-40 grade with super plasticizer in accordance with I S 10262.
11. To determine the Permeability of Concrete.
12. Study of Core cutter, UPV & Rebound Hammer equipment.

Course Overview:

The primary focus of this lab is on additional cementing materials used in the production of concrete. This lab activity broadly includes the investigation of the qualities of concrete's component parts, the formulation of the concrete mix, the manufacture of concrete, and various concreting procedures. The training also gives the correct attention to the study of aggregate and water properties. Another crucial element of the training is the concrete production process and concreting procedures. The course covers admixtures, which are substances added to concrete to change its properties, in addition to studying special purpose concretes. This will include Le-chatelier Blaine's air permeability, bulking of fine aggregate Pycnometer etc.

Course Outcomes:

CO.NO.	Cognitive Level	Course Outcome
1	**Comprehension**	To determine the different properties of building materials like cement, concrete, aggregates through practical(s).
2	**Application**	To design concrete mix (M-20 and M-40) in lab.
3	**Analysis**	Learner can state what a Non Destructive testing is.
4	**Synthesis**	Test the properties of fresh concrete mix.
5	**Evaluation**	Design concrete mix for various grades of concrete according to IS recommendations with and without admixture.

Prerequisites:

1. Fundamentals knowledge of Concrete technologies & materials

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Course Outcome Mapping with Program Outcome:

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2	PSO 3
CO2410.1	3	1	2	1	1	2	2	1	1	1	1	1	2	1	1
CO2410.2	3	2	2	1	1	1	1	1	1	1	1	2	2	1	1
CO2410.3	3	1	2	1	1	2	2	1	1	1	1	1	2	1	1
CO2410.4	3	3	3	3	2	2	2	1	1	1	1	2	2	1	1
CO2410.5	3	1	2	1	1	2	1	1	1	1	1	1	2	1	1
CO2410 (AVG)	3	1.6	2.2	1.4	1.2	1.8	1.6	1	1	1	1	1.4	2	1	1

Course Coverage Module Wise:

S. No.	Topic
1	To determine the fineness of Cement by Blaine's air permeability test.
2	To determine the flexural strength of Concrete.
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Faculty Lab Manual Link

https://drive.google.com/file/d/1a04IvvwsJraXmjFTVtEr2REuAmZAaXXb/view?usp=share_link

Viva QUIZ Link

1. https://drive.google.com/file/d/1a04IvvwsJraXmjFTVtEr2REuAmZAaXXb/view?usp=share_link

Assessment Methodology:

1. Practical exam using Advance Surveying Lab software.
2. Internal exams and Viva Conduct.
3. Final Exam (practical paper) at the end of the semester.

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