

23CE3451- CONCRETE TECHNOLOGY LAB

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|--|--|-----|-----------------------------|------------|------------|-----|--------|-----|-----|------|------|------|------|------|
| Offering Branches | CE | | | | | | | | | | | | | |
| Course Category: | Engineering Sciences | | Credits: | 1.5 | | | | | | | | | | |
| Course Type: | Laboratory | | Lecture-Tutorial-Practical: | 0-0-3 | | | | | | | | | | |
| Prerequisites: | Nil | | Continuous Evaluation: | 30 | | | | | | | | | | |
| | | | Semester End Evaluation: | 70 | | | | | | | | | | |
| | | | Total Marks: | 100 | | | | | | | | | | |
| Course Outcomes | | | | | | | | | | | | | | |
| Upon successful completion of the course, the student will be able to: | | | | | | | | | | | | | | |
| CO1 | Outline importance of testing cement and its properties. | | | K3 | | | | | | | | | | |
| CO2 | Assess different properties of Aggregates | | | K3 | | | | | | | | | | |
| CO3 | Assess fresh concrete properties and their relevance to hardened concrete | | | K4 | | | | | | | | | | |
| CO4 | Assess hardened concrete properties. | | | K3 | | | | | | | | | | |
| 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 | 2 | | | 2 | 2 | | 2 | 3 | 2 |
| CO2 | 3 | 3 | | 3 | 3 | 2 | | | 2 | 2 | | 2 | 3 | 2 |
| CO3 | 3 | 3 | | 3 | 3 | 3 | | | 3 | 3 | | 3 | 3 | 3 |
| CO4 | 3 | 3 | | 3 | 3 | 2 | | | 2 | 2 | | 2 | 3 | 2 |
| Avg. | 3 | 3 | | 3 | 3 | 2 | | | 2 | 2 | | 2 | 3 | 2 |
| 1- Low | | | 2-Medium | | | | 3-High | | | | | | | |
| Course Content | | | | | | | | | | | | | | |
| Tests on Cement | | | | | | | | | | | | | | |
| Experiment No.1 | Determination of Normal Consistency and Fineness of cement | | | CO1 | | | | | | | | | | |
| Experiment No.2 | Determination of Initial setting time and Final setting time of cement. | | | | | | | | | | | | | |
| Experiment No.3 | Determination of Specific gravity and soundness of cement. | | | | | | | | | | | | | |
| Experiment No.4 | Determination of compressive strength of cement. | | | | | | | | | | | | | |
| Tests on Fine Aggregates | | | | | | | | | | | | | | |
| Experiment No.5 | Determination of Grading and fineness modulus of Fine aggregate by sieve analysis. | | | CO2 | | | | | | | | | | |
| Experiment No.6 | Determination of Specific gravity of fine aggregate | | | | | | | | | | | | | |
| Experiment No.7 | Determination of Water absorption and bulking of sand. | | | | | | | | | | | | | |
| Tests on Coarse Aggregates | | | | | | | | | | | | | | |
| Experiment No.8 | Determination of Grading of Coarse aggregate by sieve analysis. | | | | | | | | | | | | | |
| Experiment No.9 | Determination of Specific gravity of coarse aggregate | | | | | | | | | | | | | |
| Experiment No.10 | Determination of Water absorption of Coarse aggregates | | | | | | | | | | | | | |
| Tests on fresh Concrete | | | | | | | | | | | | | | |
| Experiment No.11 | Determination of Workability of concrete by compaction factor method | | | | CO3 | | | | | | | | | |
| Experiment No.12 | Determination of Workability of concrete by slump test | | | | | | | | | | | | | |
| Experiment No.13 | Determination of Workability of concrete by Vee-bee test. | | | | | | | | | | | | | |
| Tests on Hardened Concrete | | | | | | | | | | | | | | |
| Experiment No.14 | Determination of Compressive strength of cement concrete and Modulus of rupture | | | CO4 | | | | | | | | | | |
| Experiment No.15 | Determination of Split tensile strength of concrete. | | | | | | | | | | | | | |
| Experiment No.16 | Demonstration of Non-Destructive testing on concrete | | | | | | | | | | | | | |
| Learning Resources | | | | | | | | | | | | | | |

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| Text Books | <ol style="list-style-type: none"> 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) Determination of compressive strength of cement. IS 4031(Part 6) & IS4031(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. 5. M. S. Shetty, Concrete Technology, S Chand Publications. |
| Reference Books | M. L. Gambhir, Concrete Technology, Mcgraw Hill Education. |
| e-Resources& other digital material | 1. http://eerc03-iiith.vlabs.ac.in/ |