

## 20ES1351- CONSTRUCTION MATERIALS & CONCRETE TECHNOLOGY LAB

<b>Offering Branches</b>	CE		
Course Category:	Engineering Sciences	Credits:	1.5
Course Type:	Laboratory	Lecture-Tutorial-Practical:	0-0-3
Prerequisites:	Nil	Continuous Evaluation:	15
		Semester End Evaluation:	35
		Total Marks:	50

### Course Outcomes

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

<b>CO1</b>	Assess the different properties of Cement.	K3
<b>CO2</b>	Determine the different properties of aggregates.	K3
<b>CO3</b>	Design & describe the preparation of green concrete and testing of concrete.	K4
<b>CO4</b>	Determine the properties of hardened concrete.	K3

### Contribution of Course Outcomes towards achievement of Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>CO1</b>	3	3		3	3	2			2	2		2	3	2
<b>CO2</b>	3	3		3	3	2			2	2		2	3	2
<b>CO3</b>	3	3		3	3	3			3	3		3	3	3
<b>CO4</b>	3	3		3	3	2			2	2		2	3	2
<b>Avg.</b>	3	3		3	3	2			2	2		2	3	2

1- Low

2-Medium

3-High

### Course Content

<b>Experiment No.1</b>	Determination of fineness and consistency of cement.	CO1 CO2 CO3 CO4
<b>Experiment No.2</b>	Determination of setting time of cement.	
<b>Experiment No.3</b>	Determination of specific gravity of cement	
<b>Experiment No.4</b>	Determination of compressive strength of cement.	
<b>Experiment No.5</b>	Determination of fineness modulus of fine aggregate and coarse aggregate	
<b>Experiment No.6</b>	Determination of specific gravity of fine aggregate and coarse aggregate.	
<b>Experiment No.7</b>	Determine the mix proportions of materials for a particular grade of concrete as per IS 10262.	
<b>Experiment No.8</b>	Conducting trials for M20, M30 and M40 grades of Concrete	
<b>Experiment No.9</b>	Determination of workability of concrete by slump cone test.	
<b>Experiment No.10</b>	Determination of workability of concrete by compaction factor apparatus	
<b>Experiment No.11</b>	Determination of compressive strength of concrete.	
<b>Experiment No.12</b>	Determination of split tensile strength of concrete.	
<b>Experiment No.13</b>	Determination of modulus of rupture of plain concrete beam.	
<b>Experiment No.14</b>	Demonstration of Rebound Hammer test and Ultrasonic Pulse Velocity Test	

### Learning Resources

<b>Text Books</b>	<ol style="list-style-type: none"> <li>Concrete Technology Lab Manual by Dept. of CE, PVPSIT</li> <li>Determination of fineness and consistency of cement. IS 4031(Part 4) &amp; IS 4031(Part 1)</li> <li>Determination of setting time of cement. IS 4031(Part 5)</li> <li>Determination of specific gravity of cement (IS:4031-PART 11)</li> <li>Determination of compressive strength of cement. IS 4031(Part 6) &amp; IS</li> </ol>
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	<p>4031(Part 7)</p> <ol style="list-style-type: none"> <li>6. Determination of fineness modulus of fine aggregate and coarse aggregate IS:383</li> <li>7. Determination of specific gravity of fine aggregate and coarse aggregate. IS:2386 (Part 3)</li> <li>8. Determine the mix proportions of materials for a particular grade of concrete as per IS 10262.</li> <li>9. Determination of workability of concrete by slump cone test. IS: 1199</li> <li>10. Determination of workability of concrete by compaction factor apparatus. IS: 1199</li> <li>11. Determination of compressive strength of concrete. IS 516.</li> <li>12. Determination of split tensile strength of concrete. IS 5816.</li> <li>13. Determination of modulus of rupture of plain concrete beam. IS 516.</li> <li>14. M. S. Shetty, Concrete Technology, S Chand Publications.</li> </ol>
<b>Reference Books</b>	<ol style="list-style-type: none"> <li>1. M. L. Gambhir, Concrete Technology, Mcgraw Hill Education.</li> </ol>
<b>e-Resources&amp; other digital material</b>	<ol style="list-style-type: none"> <li>1. <a href="http://eerc03-iiith.vlabs.ac.in/">http://eerc03-iiith.vlabs.ac.in/</a></li> </ol>