

**23CE22P1 CONCRETE TECHNOLOGY LABORATORY**

<b>Course Category</b>	Professional Core	<b>Credits</b>	1.5
<b>Course Type</b>	Practical	<b>Lecture – Tutorial –Practical</b>	0-0-3
<b>Prerequisite</b>	-	<b>Sessional Evaluation</b>	30
		<b>Semester End Exam. Evaluation</b>	70
		<b>Total Marks</b>	100

<b>Course Objectives</b>	To test basic properties of ingredients of concrete fresh and hardened concrete properties.		
<b>Course Outcomes</b>	CO1	Conduct various tests on cement and analyze the results.	
	CO2	Conduct various tests on fine aggregate and analyze the results.	
	CO3	Conduct various tests on coarse aggregate and analyze the results.	
	CO4	Conduct various tests on fresh concrete and analyze the results.	
	CO5	Conduct various tests on hardened concrete and analyze the results.	
<b>Course Content</b>	<p><b>Detailed Syllabus:</b></p> <p><b>I. Tests on Cement</b></p> <ol style="list-style-type: none"> <li>1. Normal Consistency and Fineness of cement.</li> <li>2. Initial setting time and Final setting time of cement.</li> <li>3. Specific gravity and soundness of cement.</li> <li>4. Compressive strength of cement.</li> </ol> <p><b>II. Tests on Fine Aggregates</b></p> <ol style="list-style-type: none"> <li>5. Grading and fineness modulus of Fine aggregate by sieve analysis.</li> <li>6. Specific gravity of fine aggregate</li> <li>7. Water absorption and Bulking of sand.</li> </ol> <p><b>III. Tests on Coarse Aggregates</b></p> <ol style="list-style-type: none"> <li>8. Grading of Coarse aggregate by sieve analysis.</li> <li>9. Specific gravity of coarse aggregate</li> <li>10. Water absorption of Coarse aggregates</li> </ol> <p><b>IV. Tests on fresh Concrete</b></p> <ol style="list-style-type: none"> <li>11. Workability of concrete by compaction factor method</li> <li>12. Workability of concrete by slump test</li> <li>13. Workability of concrete by Vee-bee test.</li> </ol> <p><b>V. Tests on Hardened Concrete</b></p> <ol style="list-style-type: none"> <li>14. Compressive strength of cement concrete and Modulus of rupture</li> <li>15. Split tensile strength of concrete.</li> <li>16. Young's Modulus and Poisson's Ratio</li> <li>17. Non-Destructive testing on concrete-Using Rebound Hammer (for demonstration)</li> </ol>		
<b>E-resources</b>	<a href="https://cs-iitd.vlabs.ac.in/List%20of%20experiments.html">https://cs-iitd.vlabs.ac.in/List%20of%20experiments.html</a>		

**CO-PO Mapping:** 3-High Mapping, 2-Moderate Mapping, 1-Low Mapping, - Not Mapping

	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
<b>CO1</b>	3	2	2	1	-	-	-	-	-	-	2	2	-	2	1
<b>CO2</b>	3	2	2	1	-	-	-	-	-	-	2	2	-	1	1
<b>CO3</b>	3	2	2	1	-	-	-	-	-	-	2	2	-	1	1
<b>CO4</b>	3	2	2	1	-	-	-	-	-	-	2	2	-	1	1
<b>CO5</b>	3	2	2	1	-	-	-	-	-	-	2	2	-	1	1