

1	Name of Syllabus	C. C. In Construction Material Testing Laboratory Technician (304110)																																															
2	Max.Nos of Student	25 Students																																															
3	Duration	6 Months																																															
4	Type	Part Time																																															
5	Nos Of Days / Week	6 Days																																															
6	Nos Of Hours /Days	4 Hrs																																															
7	Space Required	Workshop = 200 Sq feet <u>Class Room = 200 Sq feet</u> TOTAL = 400 Sq feet																																															
8	Entry Qualification	XII th Pass																																															
9	Objective Of Syllabus/ introduction	To render the maximum competency so that one can get employment in construction industry																																															
10	Employment Opportunity	Can work in Organization as Quality Controller such as Testing laboratories																																															
11	Teacher’s Qualification	Diploma in civil Engg.																																															
12	Training System	<div>Training System Per Week</div> <table><tr><td>Theory</td><td>Practical</td><td>Total</td></tr><tr><td>6 Hours</td><td>18 Hours</td><td>24 Hours</td></tr></table>						Theory	Practical	Total	6 Hours	18 Hours	24 Hours																																				
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13	Exam. System	<table><tr><th>Sr. No.</th><th>Paper Code</th><th>Name of Subject</th><th>TH/PR</th><th>Hours</th><th>Max. Marks</th><th>Min. Marks</th></tr><tr><td>1</td><td>30411011</td><td>Concrete Technology and Quality Management</td><td>TH-I</td><td>3 hrs</td><td>100</td><td>35</td></tr><tr><td>2</td><td>30411012</td><td>Soil mechanics</td><td>TH-II</td><td>3 hrs</td><td>100</td><td>35</td></tr><tr><td>3</td><td>30411021</td><td>Concrete Technology</td><td>PR-I</td><td>3 hrs</td><td>100</td><td>50</td></tr><tr><td>4</td><td>30411022</td><td>Soil Mechanics</td><td>PR-II</td><td>3 hrs</td><td>100</td><td>50</td></tr><tr><td></td><td></td><td>Total</td><td></td><td></td><td>400</td><td>170</td></tr></table>						Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Min. Marks	1	30411011	Concrete Technology and Quality Management	TH-I	3 hrs	100	35	2	30411012	Soil mechanics	TH-II	3 hrs	100	35	3	30411021	Concrete Technology	PR-I	3 hrs	100	50	4	30411022	Soil Mechanics	PR-II	3 hrs	100	50			Total			400	170
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1	30411011	Concrete Technology and Quality Management	TH-I	3 hrs	100	35																																											
2	30411012	Soil mechanics	TH-II	3 hrs	100	35																																											
3	30411021	Concrete Technology	PR-I	3 hrs	100	50																																											
4	30411022	Soil Mechanics	PR-II	3 hrs	100	50																																											
		Total			400	170																																											

## **THEORY -1– (Concrete Technology and Quality Management)**

	Topics	
	Concrete Technology –	a. Cement—General, Types of cement & Testing of cement b. Reinforcement steel – 0.2 percent proof/ yield stress, Ultimate tensile stress, weight per meter, percentage elongation. c. Aggregate- general, types of Aggregates, effect of bad quality of aggregate on quality of concrete and Testing of Aggregate d. Water- General, Qualities of water, requirement of water for workable & durable concrete e. Admixtures & construction chemicals- General role of admixtures and construction chemicals in concrete f. Elasticity, creep & shrinkage, Durability of concrete, Testing of Hardened concrete, concrete mix design, special concrete and concreting method

### **Practical – I**

1. Determination of fineness of cement
2. Determination of standard / Normal consistency of cement
3. Determination of Initial & Final setting time of cement
4. Determination of soundness of cement
5. Field test to verify quality of cement
6. Field test to verify quality of concrete / Laboratory tests also

### **Theory – II - Soil Mechanics**

1. Soil – Introduction, types of soil
2. Foundation- Introduction, functions of foundations, types of foundations, site investigation and sub-soil exploration, bearing capacity of soils, plate load test, causes of failures of foundations and remedial measures. Modular dry density & Optimum moisture content. Sieve analysis.
3. Classification of soil.
4. Tests of Soil
5. California bearing ratio (CBR) – Introduction, CBR test of a soil.

	Topics	<b>Practical – II – Soil Mechanics</b>
		<p>Determination of water content of soil by oven drying method. Field identification of soil</p> <p>Practical tests required to be done from out side sources.</p> <ol style="list-style-type: none"> <li>1. Determination the bulk unit weight &amp; Dry unit weight of given soil by soil core cutter.</li> <li>2. Determine the bulk unit weight &amp; Dry unit weight of given soil by sand replacement method</li> <li>3. Determination of specific gravity of soil by Cyclometer method</li> <li>4. Determination of Liquid limit of given soil by casagrande's method</li> <li>5. Determination of plastic limit of soil</li> <li>6. Determination of shrinkage limit of the remolded specimen</li> <li>7. Demonstration of Plate Load Test.</li> <li>8. Determination of CBR Value of a soil sample</li> </ol>

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