


**DEPARTMENT OF CIVIL ENGINEERING**  
**NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI**

**COURSE PLAN**

Course Title	Geotechnical Engineering Laboratory		
Course Code	CELR 15, Aug- 2022	No. of Credits	2
Department	CIVIL ENGINEERING	Faculty	Dr. Jeevan Joseph
Pre-requisites Course Code	NIL		
Course Coordinator(s) (if, applicable)	NIL		
Other Course Teacher(s)/Tutor(s) E-mail	NA	Telephone No.	NA
Course Type	Core course <input checked="" type="checkbox"/> Elective course <input type="checkbox"/>		
<b>COURSE OVERVIEW</b>			
<ul style="list-style-type: none"> <li>To train to perform various laboratory tests to determine the physical properties and engineering characteristics of soil in accordance with IS specifications.</li> </ul>			
<b>COURSE OBJECTIVE</b>			
<ol style="list-style-type: none"> <li>To estimate index properties of soils (coarse and fine)</li> <li>To estimate consistency limit of fine grained soils</li> <li>To estimate shear strength of soils by direct shear test, Triaxial shear test, vane shear test &amp; unconfined compressive test</li> <li>To estimate the engineering properties of the soils by CBR test, permeability test and consolidation test</li> </ol>			
<b>COURSE OUTCOMES (CO)</b>			
<b>Course Outcomes</b>	<b>Aligned Programme Outcomes (PO)</b>		
<p>Upon completion of this course, the students will be able to</p> <ul style="list-style-type: none"> <li>Classify the soils based on their index properties</li> <li>Differentiate fine grained and coarse grained soils</li> <li>Determine shear strength parameter of soil for foundation design</li> <li>Estimate the infiltration capacity and compressibility of soils for predicting settlement.</li> </ul>			

**COURSE TEACHING AND LEARNING ACTIVITIES**

S.No	Topic	Mode of Delivery
1	Grain Size Analysis & Hydrometer	Explanation and Practice
2	Specific Gravity	Explanation and Practice
3	Consistency Limits	Demo and Practice
4	Permeability Test- Constant Head Method & Falling Head Method	Demo and Practice
5	Unconfined Compression Test	Demo and Practice
6	Compaction Test	Explanation and Practice
7	Core Cutter Method	Explanation and Practice
8	Sand Replacement Method	Explanation and Practice
9	Direct Shear Test	Demo and Practice
10	Vane Shear Test	Demonstration
11	California Bearing Test	Demonstration
12	Triaxial Test	Demonstration
13	Consolidation Test	Demonstration

**COURSE ASSESSMENT METHODS**

S.No	Mode of Assessment	Total Marks	% Weightage
1	Every Experiment contains 10 mark finally totaled to 50 marks	40	50%
2	Viva	20	25%
3	End Semester	20	25%
	<b>Total</b>	<b>100 marks</b>	

**ESSENTIAL READINGS : Textbooks, reference books and journals.**

**Reference Books:**

1. Gopal Ranjan Rao, P. Basic and Applied Soil Mechanics, New Age International Pvt. Limited, New Delhi, 2002.
2. Murthy, V.N.S., A text book of Soil Mechanics and Foundation Engineering, UBSN Publishers Distributors Ltd., New Delhi, 1999
3. Punmia, B.C. Soil Mechanics and Foundation Engineering, Laxmi Publications Pvt. Ltd., New Delhi, 1995.
4. Braja M. Das, Fundamentals of Geotechnical Engineering, Thomson Asia Pvt. Ltd., Singapore, 2005

**COURSE EXIT SURVEY**

1. Class committee meetings.
2. Online - Feedback forms submission through MIS.

**COURSE POLICY (including plagiarism, academic honesty, attendance, etc.)**

Minimum 75% attendance is compulsory for attending the final examination. A min of 35 % for passing the subject

**ADDITIONAL COURSE INFORMATION**


The Course Faculty Details: Room No.:18 (Civil-Department)

Timings: 09:00-5:00 P.M.

Email ID: jeevan@nitt.edu

Telephone No.: 9619474630

**FOR SENATE'S CONSIDERATION**

  
Course Faculty Dr. Jeevan Joseph

  
CC-Chairperson \_\_\_\_\_

  
HOD \_\_\_\_\_