

MARTHANDAM COLLEGE OF ENGINEERING AND TECHNOLOGY**DEPARTMENT OF CIVIL ENGINEERING****SOIL MECHANICS LABORATORY**

Major Equipment's Available in the Lab

Sl. No	Name of the Equipment's	Specification	Quantity
1	Three Gard Consolidation	-	1
2	Triaxial Shear Apparatus	-	1
3	Direct Shear Machine with Shear Box	-	1
4	Standard Brass Sieves 8" Dia	8" Dia	1
5	Soil Hydrometer	-	2 Set
6	Liquid Limit Apparatus	-	2
7	Plastic Limit Apparatus	-	2
8	Shrinkage Limit Apparatus	-	2
9	Glass Thermometer	-	3
10	Core Cutter Dolly	-	2
	Rammer		1
11	Sand Pouring Cylinder 100mm Dia	100mm Dia	2
12	Pycnometer	-	1
13	Stop Watch	-	4
14	Digital Electronic Weighing Machine (Capacity 150g)	150g	3
15	Digital Electronic Weighing Machine(30Kg)	30Kg	1
16	Permeability apparatus	-	1

COURSES OFFERED

Sl. No	Odd Sem (Course code & Name)	Class	Even Sem (Course code & Name)	Class
1	-	-	CE3413 Soil Mechanics Laboratory	II Civil

CE3413 SOIL MECHANICS LABORATORY

OBJECTIVES

- To develop skills to test the soils for their index and engineering properties
- To characterize the soil based on their properties.
- To characterise based on the density of soils.
- To impart knowledge to determine the soil based on index properties.
- To familiarize the students about the fundamental concepts of compaction properties of soils.

OUTCOME

- Conduct tests to determine the index properties of soils
- Determine the insitu density and compaction characteristics.
- Conduct tests to determine the compressibility, permeability and shear strength of soils.
- Understand the various tests on Geosynthetics.
- Students are able to characterize the soil based on their properties

LIST OF EXPERIMENTS

1. DETERMINATION OF INDEX PROPERTIES

Specific gravity of soil solids

- a. Grain size distribution – Sieve analysis
- b. Grain size distribution - Hydrometer analysis
- c. Liquid limit and Plastic limit tests
- d. Shrinkage limit and Differential free swell tests

2. DETERMINATION OF INSITU DENSITY AND COMPACTION CHARACTERISTICS

- a. Field density Test (Sand replacement method)
- b. Determination of moisture – density relationship using standard proctor compaction test.

3. DETERMINATION OF ENGINEERING PROPERTIES

- a. Permeability determination (constant head and falling head methods)
- b. One dimensional consolidation test (Determination of co-efficient of consolidation only)
- c. Direct shear test in cohesion less soil
- d. Unconfined compression test in cohesive soil

- e. Laboratory vane shear test in cohesive soil
 - f. Tri-axial compression test in cohesion less soil (Demonstration only)
 - g. California Bearing Ratio Test
4. TEST ON GEOSYNTHETICS (Demonstration only)
- Determination of tensile strength and interfacial friction angle.
- a. Determination of apparent opening sizes and permeability.