



## **C.U.SHAH UNIVERSITY – Wadhwan City**

**FACULTY OF:** -Technology and Engineering (Diploma Engineering)

**DEPARTMENT OF:** - Civil Engineering

**SEMESTER:** - IV **CODE:** -2TE04SME1

**NAME – Soil Mechanics**

### **Teaching & Evaluation Scheme:-**

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical (Marks)		Total	
											Internal	University		
							Sessional Exam		University Exam		Pr	TW		Pr
						Marks	Hours	Marks	Hours					
2TE04SME1	Soil Mechanics	03	00	02	05	04	30	1.5	70	03	30	20	---	150

**Objectives:** To understand the principles of soil mechanics and apply them to the practical situations.

**Prerequisites:** Basic knowledge of Principles of soil mechanics and forces.

### **Course Outlines:-**

Sr. No.	Course Contents	Teaching Hours
1	<b>Soil:</b> soil formation & profiles	3
2	<b>Weight :</b> Volume relationship for soils- Specific Gravity and Moisture content tests.	3
3	<b>Soil identification and Description:</b> Types of soil classification systems, preliminary field-tests for soil identifications.	5
4	<b>Permeability:</b> Darcy's law, Constants head and falling head permeability test	4
5	<b>Compaction:</b> Standard and Modified Proctor tests, Field dry density, determination by core cutter method and sand replacement methods.	4
6	<b>Shear strength of soil:</b> Coulomb's law of shear strength, Mohr's stress circle, undrained direct shear test, unconfined compression test and vane shear test.	6
7	<b>Consolidation:</b> Spring analogy, time lags and consolidation test.	5
8	<b>Bearing capacity of soils:</b> Shallow foundation types, net load and gross load, Field plate test. Limitations effect of water table and size of foundation.	7
9	<b>Pile foundation:</b>	5

	Types of piles, field pile load test, chemical actions of soil and water on piles	
10	<b>Sub-surface exploration:</b> Preliminary and detailed explorations, undisturbed soil sampling, Standard penetration test, field vane shear test, and dynamic cone penetration test.	<b>5</b>

**Learning Outcome:** Ability to apply and correlate the principles of soil mechanics with practical problems at site,

**Experiment List:-**

- Field Dry density and moisture content determinations by a) Core cutter method, b) Sand replacement method
- Specific gravity of soils
- Sieve analysis
- Atterberg's limits a) Liquid limit, b) Plastic limit, c) Shrinkage limit
- U. U. direct shear test
- C.B.R. Test
- Compaction test a) Standard Proctor Compaction test
- Falling head permeability test
- Vane shear test
- U.C.C. test

**Books Recommended:-**

- Soil Mechanics and foundation Engg by **Dr. V.N. Murthy** UBS Publishers Distributors Ltd, 2009
- Modern Geotechnical Engg. by **Dr. Alam Singh**, Cbs Publishers & Distributors 3rd Edition, 2006
- Soil Mechanics and foundation Engg by **Dr. B.C. Punmia Laxmi** publishers, edition 2005