

Year & Sem: E2S1	Course Code: CE2104	Course Name: Soil Mechanics	No. of Credits: 4	L 2	T&PS 2	P 0
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UNIT-I: Introduction:

Origin of soil, Phase relationships, Identification and classification of soils

UNIT-II: Permeability:

Bernoulli's equation, Darcy's law, hydraulic conductivity, lab tests for permeability

Stress analysis:

In-Situ Stresses, Effective stresses, Seepage force, Capillary rise, piping, quicksand condition

UNIT-III: Seepage Through Soils:

Seepage, Flow nets, Seepage calculations for geotechnical structures

UNIT-IV: Compaction of Soils:

Estimation of Optimum Moisture Content and Maximum Dry Density

UNIT-V: Compressibility & Consolidation of Soil:

Settlement of Soil, Immediate settlement, Over consolidation, Pre-consolidation pressure, C_c and C_s , Terzaghi's theory of consolidation, coefficient of consolidation, Settlement calculations

UNIT-VI: Shear Strength of Soils

Stresses on soil elements, Mohr's Circle, Principal Stresses, Pole, Stress Path, Direct shear test, Mohr-Coulomb Failure criterion, Triaxial tests- drained and undrained tests, Vane shear test, stress-strain relationships and strength of loose and dense sands, NC and OC clays, dilation, pore pressures, Skempton's coefficients, Liquefaction phenomenon, Shear Strength of unsaturated soil, Liquefaction

References/Text Books:

1. Principles of Geotechnical Engineering, By: Braja M. Das., Fifth edition, First reprint 2002, low price edition, Thomson learning Inc
2. Basic & Applied Soil Mechanics, By: GopalRanjan / Rao A.S.R. 2003 print, New Age International Pvt Ltd
3. K. Terzaghi, R. B. Peck and G. Mesri, Soil Mechanics in Engineering Practice, John Wiley & Sons, 1996

Lecture Plan: Unit-I & -II syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations.

Video Lectures (Web Links):

1. RGUKT-Intranet