

STRENGTH AND DEFORMATION BEHAVIOUR OF SOIL

Introduction: Physico-Chemical aspects, Failure theories, Yield criteria, Elastic and Plastic analysis of soil, Mohr's diagram. ; Stresses in Soil: Description of state of stress and strain at a point, stress distribution problems in elastic half space. Boussinesqu, Westergard Mindlin and Kelvin problems. Distribution of contact pressure. Analysis of Elastic settlement. ; Soil Plasticity.; Shear Strength of Soils: Experimental determination of shear strength, Types of tests based on drainage conditions and their practical significance, Skempton's and Henkel's pore water pressure coefficients, Stress path, Shear strength of unsaturated soils, Row's stress dilatancy theory. Constitutive Models: Constitutive Models in Soil Mechanics: Isotropic Elastic, Anisotropic Plasticity and Viscous Models. Representing Soil Behaviour using these Models. ; Advances in Constitutive models.

Essential Reading:

1. A.P.S. Selvadurai, *Plasticity & Geomechanics*, Cambridge University Press, 2002
2. W.F. Chen, *Limit Analysis & Soil Plasticity*, Elsevier Scientific, 1975.

Supplementary Reading:

1. C. S. Desai and J. T. Christian, *Numerical Methods in Geotechnical Engineering*, McGraw Hill, New York.
2. R. F. Scott, *Principles of Soil Mechanics*, Addison & Wesley