CE 201 Aug 3:0

Basic Geomechanics

Instructor

Tejas G Murthy
Email: tejas@iisc.ac.in

Teaching Assistant

undecided
Email: undecided

Department: Civil Engineering

Course Time: undecided

Lecture venue: undecided

Detailed Course Page: n.a.

Announcements

n.a.

Brief description of the course

The course is designed to provide an overview of the fundamentals of geomechanics, especially in the framework of continuum mechanics and very basic plasticity theory. The main objective is to provide a firm theoretical underpinning of mechanics for understanding the behaviour of geomaterials. Sufficient understanding would be gained for any further research or practise of geomechanics.

Prerequisites

Undergraduate level courses in strength of materials, fluid mechanics and solid mechanics

Syllabus

Introduction to genesis of soils, basic clay mineralogy; Principle of effective stress, permeability and flow; Fundamentals of Tensors, Introduction to stresses and deformation measures; Mohr-Coulomb failure criteria, soil laboratory tests; Critical state and stress paths. Shear Strength and Stiffness of Sands; Consolidation, shear strength and stiffness of clays

Course outcomes

A thorough understanding of the fundamentals of geomechanics, with a strong theoretical underpinning of

mechanics.

Grading policy

2 midterm exams (20 % x 2 = 40%)

Homeworks (10%)

Final exam (50%)

Assignments

n.a

Resources

Wood, D.M., Soil Behaviour and Critical State Soil Mechanics, Cambridge University Press, 1991.

Bolton, M.D. A Guide to Soil Mechanics, Cambridge University Press, 1991.

Salgado, R., The Engineering of Foundations, McGraw Hill, 2008.

Other books and resources on Continuum mechanics