



Course Name:

Advanced Soil Mechanics (I)

Course Number: 20-410	Credit: 3
Program: Graduate	Course Type: Technical Required
Prerequisite: -	Corequisite: -

Course Description (Objectives):

This course, as an extension of advanced topics in undergraduate soil mechanics, focuses on studying soil behavior with an emphasis on physical and chemical properties, the principles of flow in porous media, differences in shear strength behavior of clays and sands, and familiarity with the instruments applied in instrumentation-requiring projects.

Course Content (outline):

- Chapter 1: Physical and chemical properties of Soils
- Chapter 2: Principles of effective stress
- Chapter 3: Steady and transient flow in porous media
- Chapter 4: Shear strength properties of soils
- Chapter 5: Concept of critical state
- Chapter 6: Shear behavior of over-consolidated clays
- Chapter 7: Behavior of sands
- Chapter 8: Instrumentation and monitoring in geotechnical engineering

References:

- “Soil Mechanics & Foundations”, M. Budhu, 1st Ed., John Wiley, 2000
- “Advanced Soil Mechanics”, B. M. Das, 1st Ed., Mc Graw Hill, 1983
- “The Mechanics of Soils – An Introduction to Critical State Soil Mechanics”, J. H. Atkinson & P. L. Bransby, 1st Ed., Mc Graw Hill, 1978
- “Instrumentation of Geotechnical Structures”, Duncliff, 1998