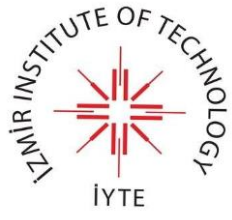# CE 544

Stability of Soils

Fall 2024-2025

Instructor: Dr. Volkan İşbuğa , Civil Engineering Department,
Email: volkanisbuga@iyte.edu.tr

Textbook: John Atkinson , The Mechanics of Soils and Foundations-CRC Press (2007)
J. Michael Duncan and Stephen G. Wright, Soil Strength and Slope Stability – John
Wiley & Sons, INC

Course Website: Students are required to register themselves at IYTE Course Management
System (https://cloud-lms.iyte.edu.tr), Teams, and enroll to CE 544. All announcements and
course material will be uploaded on this site

I.   Review of the definition of shear strength of soils
   - State of stress and Mohr circle
II.   Slopes and Their importance
   - Examples of Slope Failure
   - Causes of Slope Failure
III.   Soil Strength
   - Drained and Undrained Conditions
   - Drained and Undrained Shear Strengths
   - Basic Requirements for Slope Stability Analyses
IV.   Stability Conditions for Anlyses
   - End-of-Construction Stability
   - Long-Term Stability
   - Rapid (Sudden) Drawdown
   - Earthquake
V.   Method of analyzing Slope Stability
   - Simple Methods of Analysis
   - Slope Stability Charts
   - Infinite slopes
   - Computer Programs
VI.   Seismic Slope Stability
   - Analysis Procedures
   - Pseudostatic Screening Analyses
VII.   Review of vertical stress and lateral earth pressure
   - Gravity walls , Embedded walls , Cantilever walls , Anchored walls
   - Braced cuts
   - Mechanically Stabilized Walls
VIII.   Control of ground water table (if time permits)

CE 544

Stability of Soils

Fall 2024-2025

Grading Policy: Hmw,reports & Quizzes (30pts), Midterm Exam I (30 pts), Final Exam (40pts) – Total 100 points

Attendance: 70% of attendance is required

Cheating or copying: **If a student is found guilty of copying homework or cheating in tests, he/she will receive "F" grade for the course.**