

CEE 476
Principles of Soil Mechanics

- Catalog data:** 20-CEE-476. Principles of Soil Mechanics. 3 ug. cr. Soil structure and clay minerals, soil compaction, soil hydraulics, induced stresses within a soil mass, consolidation and settlement, shear strength, lateral earth pressures, and bearing capacity.
- Prerequisites:** 20 ENFD 375 Strength of Materials, 20 ENFD 383 Fluid Mechanics, 15 GEOL 374 Geology for Engineers and Architects.
See syllabus for co-requisite Laboratory course 20 CEE 477 Soil Mechanics Laboratory.
- Textbook:** Braja M. Das, *Fundamentals of Geotechnical Engineering*, Brooks/Cole, Pacific Grove, CA, 2000.
- References:** None
- Coordinator:** Mark T. Bowers, PhD, PE, Associate Professor of Civil Engineering, 665 Baldwin Hall, 556-5425, Mark.Bowers@UC.Edu
- Goals:** To introduce the science and practice of that part of civil engineering that involves natural materials (soil and rock) found close to the surface of the earth, including the application of the fundamental principles of soil mechanics to foundation design problems.
- Lecture or lab topics:**
1. Soil composition, grain size analysis, weight-volume relationships, soil classification. (6 classes)
 2. Soil compaction. (2 classes)
 3. Soil hydraulics, seepage and flow net theory. (3 classes)
 4. Effective stress concept; induced stresses. (3 classes)
 5. Consolidation; time rate of settlement. (3 classes)
 6. Shear strength of sands and clays. (4 classes)
 7. Subsurface exploration. (2 classes)
 8. Lateral earth pressures. (2 classes)
 9. Bearing capacity of shallow foundations. (2 classes)
 10. In class exams (2 classes)
- Computer usage:** Weekly in homework assignments.
- ABET criterion 3:** a, e, h, i, j, k
- ABET criterion 8:** b, d
- Date prepared:** February 4, 2004