THE UNIVERSITY OF TOLEDO

CIVE 6250 Mechanics of Unsaturated Soils

Spring Semester, 2004

TR 5:45 – 7:00, PL 3058

Lectures	Topic	Readings
2	Introduction; Definition of Terms	Chapter 1
2	Phase Relationships	Chapter 2
2	Characterization of State of Stress	Chapter 3
2	Soil Suction	Chapter 4
2	Relationships for Flow	Chapter 5
2	Permeability Measurements	Chapter 6
2	Unsaturated Flow	Chapter 7
2	Relationships for Shear Strength	Chapter 9
2	Shear Strength Measurements	Chapter 10
2	Limit Equilibrium	Chapter 11
2	Relationships for Volume Change	Chapter 12
2	Volume Change Measurements	Chapter 13
2	Consolidation and Swelling	Chapter 15

Text: The text assigned for this course is SOIL MECHANICS FOR UNSATURATED SOILS by D.G. Fredlund and H. Rahardjo.

Instructor: Dr. Andrew Heydinger

Office Hours: TR 2:30 - 4:00; other times as needed or by appointment

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Course Grade: ¹Homework Assignments 35%

Midterm Exam 30% Final Exam 35%

¹In addition to assigned problems, a term project is required. The project will require using computer software to model a problem involving unsaturated soils. Computer programs that can model geotechnical problems and allow the imput of soil parameters to represent unsaturated soil behavior are available on the ECC server or through the internet. The first step will be to identify a problem, e.g., slope stability, bearing capacity of foundations, flow in the vadose zone. Perform a literature search to locate a paper where unsaturated soil behavior was modeled using a computer program and where the unsaturated soil properties are provided. Submit your problem by the end of the 4th week. The next step will be to determine the software program that is to be used. Information on software should be submitted by the 8th week of the semester. Submit some preliminary results by the 12th week of the semester. The term projects will be due during the last week of the semester. Each student will give a short PowerPoint presentation in the last week of the semester.

Final Exam: Tuesday, May 4, 2002, 5:00 - 7:00 p.m.

WWW Location for this syllabus: http://www.eng.utoledo.edu/civil/heydinger/hcourse.html