THE UNIVERSITY OF TOLEDO

CIVE 4/5/7220 Advanced Foundation Engineering

Fall Semester, 2006

MW 4:10-5:25 PL3020

LECTURES	TOPIC	READINGS	PROBLEMS
2	Subsurface Exploration	Chapter 1, 2	2.3,5,9,11,13 Handouts (UG, G)
1	Soil Compaction	Chapter 14	14.1,3,5,7,9,11
2	Soil Improvement Ground Modification		
1	Limit Equilibrium	Handout	
2	Bearing Capacity	Chapter 3	3.1,3,5,9,11
1	Foundation Design	Chapter 4	4.1,3,7,9
1	Foundation Settlement	Chapter 5	5.1,3,5,9,13,21
1	Matt Foundations	Chapter 6	6.1,3,11
1	Lateral Earth Pressure	Chapter 7	7.1,5,11a Handout (G)
2	Retaining Wall Design	Chapter 8	8.1,5,10 GeoChallenge (UG, G)
1	MIDTERM EXAM (October 30)		
2	Sheet Pile Walls	Chapter 9	9.1,7,10 Handout (G)
2	Driven Piles	Chapter 11	11.1,3,11,13
1	Laterally Loaded Piles	Handout	11.16
1	Pile Groups	Chapter 11	11.23,24,27
2	Drilled Piles	Chapter 12	12.1,5,9
3	Slope Stability	Handout	Handout (G)

Final Exam: Wednesday, December 13, 2006

Textbooks: Principles of Foundation Engineering, *5th* Edition, Braja M. Das (Required)

Design Manuals: U.S. Army Corps of Engineers Engineering Manuals (optional)
http://www.usace.army.mil/inet/usace-docs/eng-manuals/cecw.htm

Prerequisites: CIVE 3210 Soil Mechanics, CIVE 3220 Foundation Engineering or Consent of Instructor

Instructor: Dr. Andrew G. Heydinger
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Office Hours: Office Hours: MW 3:00 - 4:00, other times as needed or by appointment

Course Grade:

Homework Assignments & Practicals	40%
Midterm exam	30%
Final Exam	30%

Policy on Homework: 1. Homework problems as announced.
2. Unexcused late assignments will not be accepted.

Advanced Foundation Engineering Practicals - Fall Semester, 2006

Each Student is to submit a 2 to 3 page summary of a publication dealing with subjects covered in this course. Suggested topics are listed below. The emphasis of the presentations will be on design procedures, design applications, special problems and innovative solutions. The summaries should contain a project description, information on subsurface conditions, design/solution approach and other details of special interest. Three sources of information that can be used are: 1) journals and conference proceedings (e.g., ASCE Journal and GSP); 2) trade magazines (e.g., Geotechnical News, Geo-Strata, Civil Engineering) and 3) the World Wide Web. Undergraduate students should prepare 2 practicals using two different sources. Graduate students should prepare 4 practicals using all three sources.

List of Topics

- Soil/Ground Improvement
  - Sand drains
  - Wick drains
  - Stone columns
  - Dynamic compaction/replacement
  - Vibratory compaction
  - Deep soil mixing
  - Slurry walls
- Soil Reinforcement
  - Retaining walls
  - Reinforce earth
- Retaining walls
  - Anchored walls
  - Soil nailing
  - Flexible walls
- Soil Stabilization
  - Soil admixtures
  - Grouting
- Slope Stability
  - Reinforced slopes
  - Pile reinforcement
  - Rainfall induced failures
  - Stability of landfills
- Deep Excavations
  - Deep soil mixing
  - Auger jet piles
  - Soil freezing
- Deep Foundations
  - Capacity of deep foundations
  - Settlement reducing foundations