

# “Think Mechanistically”

**THE UNIVERSITY OF TOLEDO**  
**CIVE 3220:041 Foundation Engineering**  
**Summer Semester, 2009**  
**TR 9:00 – 10:40, PL 3070**

<u>Week</u>	<u>DATE</u>	<u>DAY</u>	<u>Meeting</u>	<u>TOPIC</u>	<u>READING</u>	<u>ASSIGNMENTS</u>	
						<u>DESIGN</u>	<u>PROBLEMS</u>
1	5/19/09	T	1	Introduction	Chapter 10	<a href="#">Site Plan</a>	10.1,3,5,7
	21	R	2	Subsurface Exploration	Handout		10.9,11,13,16
2	26	T	3	Soil Compaction	Chapter 4		4.5,7,9
	28	R	4	Surcharging, Sand Drains	7.14, 7.15		7.19, 7.21
3	6/02/09	T	5	Foundations Types/ Limit Equilibrium	Handout	<a href="#">Fnd. Loads</a>	
	4	R	6	Bearing Capacity, Design	Chapter 12		12.1,3,5,7,9
4	9	T	7	Foundation Settlement	<a href="#">Spreadsheet</a>	<a href="#">Sub. Inv.</a>	12.11,14
	11	R	8	Matt Foundations			12.15,19,21
5	16	T	9	Lateral Earth Pressure	Chapter 11		11.1(a),3(a),5
	18	R	10	Surcharge, Wall Friction		<a href="#">Bear. Cap.</a>	11.8,10(b)
6	23	T	11	Retaining Wall Design	Chapter 13		13.1,4,6
	25	R	12	<b>Midterm Exam</b>			
7	30	T	13	Retaining Wall Design	<a href="#">Spreadsheet 1, 2</a>		
	7/02/09	R	14	Braced Cuts		<a href="#">Ret. Wall</a>	13.11
8	7	T		Sheet Pile and Anchor Walls	<a href="#">Spreadsheet</a>		
	9	R	15	Deep Foundations	Chapter 14		14.1,3,4
9	14	T	17	<b>Geo-Challenge Competition –</b>	<a href="#">Standard Wall</a> , <a href="#">Modified Wall</a>		
					<a href="#">Geo-Challenge Report</a>		
	16	R	18	Pile Capacity & Settlement			14.8
10	21	T	19	Pile Group Capacity & Settlement			14.13,16
	23	R	20	Drilled Shaft Design			14.17,19,21
11	28	T	21	Slope Stability	Chapter 9		9.1,5,7,9,11
	30	R	22	Method of Slices	<a href="#">Spreadsheet</a>		9.13,21
12	8/04/09	T	23	Computer Solutions	Handout	<a href="#">Slope Stab.</a>	
	6	R	24	<b>Final Exam</b> .....	TBA		

# “Think Mechanistically”

**THE UNIVERSITY OF TOLEDO**  
**CIVE 3220:041 Foundation Engineering**  
**Summer Semester, 2009**  
**TR 9:00 – 10:40, PL 3070**

**Instructor:** Dr. Andrew G. Heydinger  
Office NI 3029 Phone 530-8133  
Email: andrew.heydinger@eng.utoledo.edu  
Office Hours: TR 12:00 - 1:30; other times as necessary.

**Objectives:** At the conclusion of this course, you should be able apply principles introduced in Soil Mechanics (CIVE 3210) to the design of foundations and earthwork systems. You need to demonstrate knowledge of engineering practice as it pertains to subsurface investigation, soil compaction and soil improvement. You will also need to gain an understanding of limit equilibrium and lateral earth pressure theories and the application of the theories for the design of foundations, retaining walls and earthen slopes. You should be able to apply engineering judgment to effect simple engineering designs. You should also be able to incorporate the use of computer applications such as CAD, spreadsheet and slope stability software into the design process.

**Texts:** Fundamental of Geotechnical Engineering by Braja M. Das, 3<sup>rd</sup> Edition (Required)

**Prerequisite:** CIVE 3210, Soil Mechanics

**Lectures:** Lectures cover topics included in the texts and also provide insights into theories and design procedures necessary for engineering design that cannot adequately be covered in textbooks. Therefore attendance and participation in all lectures is strongly recommended.

**Assignments:** Assignments are essential to learning the material and to improving design skills. Assignments should be neatly presented on one side of the paper only. Problems should be clearly identified with the work shown and the answers underlined. Only your own work may be submitted, particularly if software solutions are developed. Homework will be collected each Tuesday. Late assignments will not be accepted. The homework will include design assignments in addition to the assignments from the text. The due dates for the design assignments will be noted on the assignments.

<b>Course Grade:</b>	Assigned Problems	25%
	Design Projects	20%
	Midterm Exam	25%
	Final Exam	30%