CEE 4800 GEOTECHNICAL ENGINEERING
Required Course

Catalog Description:
Lec. 3. Credit 3.
Prerequisite: CEE 3030 and GEOL 3210. Soil physical properties, classification, permeability and seepage, consolidation, design, and analysis of foundations.

Math & Basic Sciences:	0	Credits	Course Coordinator:	Benjamin Mohr
Engineering Topics:	3	Credits	Contains Significant Design:	No
General Education:	0	Credits	Updated:	01/28/2014
Other:	0	Credits	Specify Type if Other:	

Text Book(s) and Supplemental Material(s):
B.M. Das, *Principles of Foundation Engineering*, 7th Edition, Cengage Learning, 2011.

Course Goal(s):
To introduce the student to the theories and methods used in analysis and design of foundations of structures.

Instructional Outcomes for the Course:
Students will be expected to:
1. Have a good understanding of the field of geotechnical engineering.
2. Understand basic engineering properties of soils.
3. Investigate the flow of water through soil.
4. Calculate consolidation settlement.
5. Determine the load a shallow foundation can carry.
6. Calculate lateral earth pressure.
7. Investigate retaining wall stability.

Criterion 3 Student Outcomes addressed by this Course:
a) An ability to apply knowledge of mathematics, science, and engineering (Level 2)
c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability (Level 4)
e) An ability to identify, formulate, and solve engineering problems (Level 4)

Program Criteria addressed by this Course:
- Apply knowledge of mathematics through differential equations, calculus-based physics, chemistry, and at least one additional area of basic science, consistent with the program educational objectives (Level 2)
- Apply knowledge of four technical areas appropriate to civil engineering (Level 3)
- Design a system, component, or process in more than one civil engineering context (Level 4)

Course Topics:

1. Weight-volume relations (10%)
2. Soil classification (5%)
3. Flow of water in soil, permeability and seepage, flow nets (15%)
4. Total and effective stress; Superimposed load stresses (10%)
5. Consolidation and settlement (10%)
6. Shallow foundations (15%)
7. Lateral earth pressure (10%)
8. Retaining walls (15%)
9. Deep foundations (10%)

Additional Topics/Assignments for dual-level (4000/5000) courses:

N/A