

Course Number(s)	CE 544/644
Title	Advanced Shallow Foundation Design
Section	001
CRN(s)	44916/44918
Credits	4
Design Credits	4
Prerequisite(s)	CE 444
Days/Time	TR 1800-1950
Location	BHB 224
Final Exam Day/Time	3/15/05 at 7:30pm

Course Website

Instructor	Trevor Smith
Office	SB2 428
Phone	503-725-3225
E-mail	tevor@cecs.pdx.edu
Office Hours	MW 2-3
Mailbox Location	CEE Office, Science Building 2, Room 128

Required Text: Foundation Design: Principles and Practices by Don Coduto

Recommended References or Optional Text: Foundation Analysis and Design by J.E Bowles

Supplemental Readings/Resources: Occasional handouts

Catalog Course Description:

Advanced topics in settlement and bearing capacity analysis of shallow foundation; application of numerical schemes to foundation design.

Student Learning Objectives:

1. To acquaint students with advanced methods to design shallow foundations for bearing capacity and settlement.
2. To ensure students can analyze foundations and identify worst case serviceability.
3. For students to recognize the increasing important role of insitu tests.

Course Requirements:

Weekly project based homework, Midterm and Final
 Final week group project presentation and Report

Course Grading

Assignment	Points Assigned or % of Total Grade
Homework	30%
Midterm	20%
Final	30%
Term Report	20%

Incompletes: A grade of "I" is granted by the instructor *only* with prior approval and consent. Criteria are outlined in the PSU Bulletin. **Program requirements:** {for UG courses} The CEE Department requires that junior and senior engineering courses must be completed with a minimum grade of C-, and a student's cumulative PSU GPA must be 2.25 or higher to graduate from the BSCE program.

Course Schedule

No	Week Date	Topic	Reading Assignment	Homework Assignment	HW Due Date
1	Jan 3	Soil Mechanics requirements	To match notes	Descriptive	1/11/05
2	Jan 10	Design and Empiricism, RBD Settlement and Elasticity	ditto	Use of elasticity in excavations	1/13/05
3	Jan 17	Settlement on sand and structural damage	Duncan paper	Boring log phi and RBD	1/20/05
4	Jan 24	Plastic Equilibrium-Upper and Lower Bound	Lamb and Whitman extract	TAKE HOME MIDTERM M...elasticity and tank	2/2/05
5	Jan 31	Bearing capacity slopes, inclined load	ditto	Bearing capacity review	2/9/05
6	Feb 7	Insitu tests for direct design	CPT h/o	Lower bound analysis	02/15/05
7	Feb 14	CPT, DMT	PMT h/o	Slope factors	2/22/05
8	Feb 21	PMT and SPT		PMT on slope	3/1/05
9	Feb 28	Load test & Case Histories			
10	March 7	Review			
20		FINAL EXAM			

Computer and E-mail Accounts

All engineering students should activate their engineering computer account (go to the CadLab in SB2, 169) which will allow them to use engineering computer labs and e-mail. You should activate it *before* the day you need it. If you encounter problems with this account, see the lab attendant, or e-mail: support@cecs.pdx.edu. Please note: the CEE Department regularly sends course announcements, job information, etc. to students' CECS accounts, so if you do not check it regularly, we recommend forwarding your CECS e-mail to whatever e-mail address you use.

Ethics and Professionalism

As future professional engineers you should plan to take the FE Exam (see the Oregon State Board of Examiners for Engineering and Land Surveying at www.osbeels.org), and you should be familiar with the ASCE Code of Ethics (www.asce.org/inside/codeofethics.cfm), which includes the following:

Engineers shall act in such a manner as to uphold and enhance the honor, integrity and dignity of the engineering profession.

The PSU Student Conduct Code prohibits all forms of academic cheating, fraud, and dishonesty. Further details can be found in the PSU Bulletin. Allegations of academic dishonesty may be addressed by the instructor, and/or may be referred to the Office of Student Affairs for action. Acts of academic dishonesty may result a failing grade on the exam or assignment for which the dishonesty occurred, disciplinary probation, suspension or dismissal from the University. The students and the instructor will work together to establish optimal conditions for honorable academic work. Questions about academic honesty may be directed to the Office of Student Affairs (<http://www.ess.pdx.edu/osa/>).

Student Groups and Professional Organizations

Participation in student and professional groups can be a valuable part of your education experience. Membership gives students opportunities to get to know fellow students better, meet and network with professionals, collaborate in solving real engineering problems, learn about internship or job possibilities, socialize and have fun. Your fellow students can be a great source of help and guidance in your academic endeavors. Consider becoming active with a student organization, such as the following:

- American Society of Civil Engineers Student Group (ASCE): <http://www.asce.pdx.edu>
- Institute of Transportation Engineers Student Chapter (ITE): <http://www.its.pdx.edu/ite/>

Most professional organizations have monthly meetings and encourage student participation by providing discounts for lunch and dinner meetings. These meetings provide opportunities to network with potential future employers, learn about scholarships, and increasing your technical knowledge. Take a look at these organizations as a starting point:

- American Society of Civil Engineers (ASCE) Oregon Section: www.asceor.org
- Institute of Transportation Engineers (ITE) Oregon Section: www.oregonite.org
- Society of Women Engineers (SWE) Columbia River Section - <http://www.swe-columbia-river.org>
- Structural Engineers Association of Oregon (SEAO): www.seao.org

Resources

As a PSU student, you have numerous resources at your disposal. Please take advantage of them while you are here. A small sample is listed below:

- CE Website (includes program info, job listings, etc.): <http://www.cee.pdx.edu/>
- Career Center: <http://www.career.pdx.edu/>
- Center for Student Health & Counseling: <http://www.shac.pdx.edu/>
- The Writing Center: <http://www.writingcenter.pdx.edu/>
- PSU Disability Resource Center: 435 Smith Memorial Union

Note: The PSU Disability Resource Center is available to help students with academic accommodations. If you are a student who has need for test-taking, note-taking or other assistance, please visit the DRC and notify the instructor at the beginning of the term.

Introduction to Library and Literature Research

With the advent of the Internet it is very tempting to think that all necessary resources for a term project will be available in full text after typing in a few words at Google.com. This is not the case. You will often need to go to the library, use real library search tools and

access real books and articles contained in refereed/archival journals.

Be sure to make use of the Vikat library catalog. Go to the PSU library home page at <http://www.lib.pdx.edu/>. Also available on the library home page are Full Text Electronic Journals: <http://www.lib.pdx.edu/~bvws/bytitle.html>, and a list of on-line Databases: <http://www.lib.pdx.edu/resources/databases/databases.html>. Try EI Compendex (<http://www.ei.org/ev2/ev2.home>) and Lexis-Nexis. Note that access to these databases is free for PSU students, but you must be using a computer on campus or via a dial-in service. See <http://www.lib.pdx.edu/services/distance/proxyserver.html> for instructions on how to gain off-campus access using a proxy server.

Campus Safety

The University considers student safety paramount. The Campus Public Safety Office is open 24 hours a day to assist with personal safety, crime prevention and security escort services. Call 503-725-4407 for more information. For Campus emergencies call 503-725-4404.