

**Course Name: Advanced Soil Testing**  
**Course Code: CE 524**  
**Session: Spring 2016**

**COURSE AIM**

The aim of this course is to provide knowledge and understanding of the review of basic laboratory tests on soils, performing advanced laboratory tests on soils such as: Triaxial compression, One-dimensional consolidation, and California bearing ratio (CBR), understanding ASTM standards, sample preparation, data reduction and interpretation, and development of detailed laboratory test reports.

**INSTRUCTOR** : Prabir K. Kolay, Ph.D., P.E., M. ASCE  
Associate Professor

**CLASS TIME** : Tuesday 2:00 pm – 3:15 pm  
Thursday 2:00 pm – 3:15 pm

**OFFICE** : Engineering Bldg. B, Room B24  
Phone: 618-453-7843 (office), 618-559-6669 (cell)  
E-mail: pkolay@siu.edu

**TEXT BOOK**

References given under bibliography will be used.

**BIBLIOGRAPHY**

- K.H. Head and Roger Epps (2011), Manual of Soil Laboratory Testing, 3<sup>rd</sup> Edition: Vol. II: Permeability, Shear Strength and Compressibility Tests, ISBN-10: 143986988X.
- Cheng Liu and Jack Evett, (2008), Soil Properties: Testing, Measurement, and Evaluation (6th Edition), Prentice Hall, ISBN-10: 0136141234.
- Alan Wilfred Bishop and David John Henkel (1964), The Measurement of Soil Properties in the Triaxial Test, Edward Arnold (Publishers) Limited.

## CE 524 – Advanced Soil Testing

### CE 524 – Advanced Soil Testing TENTATIVE COURSE OUTLINE

Week	Month/Day	Date	Topics
1	Jan/Tuesday Thursday	01-19-2015 01-21-2015	Revision of basic soil tests Understanding ASTM codes
2	Jan/Tuesday Thursday	01-26-2015 01-28-2015	Soil sample collection and soil processing Moisture content, specific gravity
3	Feb/Tuesday Thursday	02-02-2015 02-04-2015	LL, PL, Sieve analysis Hydrometer test and compaction test video
4	Feb/Tuesday Thursday	02-09-2015 02-11-2015	Hydrometer test Compaction test
5	Feb/Tuesday Thursday	02-16-2015 02-18-2015	Sample preparation for Unconfined Compressive Strength test Unconfined Compressive Strength (UCS) test
6	Feb/Tuesday Thursday	02-23-2015 02-25-2015	Direct Shear test Direct Shear test
7	Mar/Tuesday Thursday	03-01-2015 03-03-2015	Sample preparation and discussion on triaxial testing Unconsolidated Undrained (UU) Triaxial Test
8	Mar/Tuesday Thursday	03-08-2015 03-10-2015	Consolidated Undrained (CU) Triaxial Test Consolidated Undrained (CU) Triaxial Test
9	Mar/Tuesday Thursday	03-15-2015 03-17-2015	<i>Spring Break</i> <i>Spring Break</i>
10	Mar/Tuesday Thursday	03-22-2015 03-24-2015	Consolidation Test Consolidation Test
11	Mar/Tuesday Thursday	03-29-2015 03-31-2015	Consolidation Test Consolidation Test
12	Apr/Tuesday Thursday	04-05-2015 04-07-2015	<i>Invited Talk</i> Swelling Test
13	Apr/Tuesday Thursday	04-12-2015 04-14-2015	Sample prepared for soaked California Bearing Ratio (CBR) test Sample prepared for unsoaked CBR test

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14	Apr/Tuesday Thursday	04-19-2015 04-21-2015	California Bearing Ratio (CBR) test California Bearing Ratio (CBR) test
15	Apr/Tuesday Thursday	04-26-2015 04-28-2015	Field test/Lab Visit Field test/Lab Visit
16	<b>May</b> /Tuesday Thursday	05-03-2015 05-05-2015	Submission of laboratory report

### **ASSESSMENT AND GRADING**

Final grade will be based on quizzes, HW assignments and laboratory reports.

#### **Grade Distribution**

<b><u>Assessment</u></b>	<b><u>Percentage (%)</u></b>
Quiz	30
Lab Report	45
HW Assignments	25

<b><u>Final Grade</u></b>	<b><u>Final Letter Grade</u></b>
90 % and above	A
80 % and above	B
70 % and above	C
60 % and above	D
Less than 60%	F