



# North South University

Department of Civil and Environmental Engineering (CEE)

**CEE 240: Introduction to Soil Mechanics and Foundation Engineering**  
Summer 2018

## Course Syllabus

**INSTRUCTOR:** Dr. Minhaz M. Shahriar  
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**CLASS HOURS:** \*Sec 1 – MW 8:00 am – 9.30 am (SAC 304)

**OFFICE HOURS:** Wednesday 10:00 am – 12:00 pm

**OFFICE:** SAC 728

### **COURSE DESCRIPTION (3 Credits):**

Introduction to Geotechnical Engineering & Soil Mechanics; Soil formation and deposits; Index properties of soil; Classifications of soil; Phase relationship; Soil compaction; Permeability & seepage; Total & effective Stresses; Stress distribution; One-dimensional consolidation; Shear strength of soil; Lateral earth pressure. Prerequisite: CEE 212. 3 credits.

### **COURSE OBJECTIVES:**

The objectives of this course are:

1. In depth understanding of geotechnical engineering and soil mechanics in the broader discipline of civil engineering;
2. Application of established engineering methods to complex engineering problem solving
3. Fluent application of engineering techniques and resources

### **COURSE OUTCOMES (CO'S):**

Upon successful completion of this course, students will be able to

- CO 1. To define different types of soil and their engineering properties;
- CO 2. To describe field compaction method and related quality control;
- CO 3. To discuss the concept of total and effective stress and influence of water flow on the engineering behavior of soils
- CO 4. To explain soil shear strength; and different shear test methods

### **TEXT BOOK:**

1. Principles of Geotechnical Engineering – Braja M Das (Seventh Edition)

### **REFERENCES:**

1. Craig's Soil Mechanics – R. F Craig
2. Smith's Element of soil mechanics – Ian Smith

## COURSE CONTENTS:

1	Soil Formation and Deposits
2	Index Properties of Soil;
3	Phase Relationship
4	Classifications of Soil
5	Soil Compaction
6	Permeability
7	Seepage
8	Total & Effective Stresses
9	Stresses in a Soil Mass
10	One-Dimensional Consolidation
11	Shear Strength of Soil
12	Lateral Earth Pressure

## AVAILABILITY OF COURSE MATERIALS:

All the lecture notes are available at the university common folder "Resource". You can print them from there. However, for some lectures, extra sheets might require to be collected from the photocopy shop. Other than lecture notes, relevant materials like class schedule, course outline, reading materials, etc. are available at different sub-folders of the same as well. Students are advised to check the folders at regular intervals.

## COURSE EVALUATION:

Attendance & Class Participation	10%
Quiz	15%
Assignment	10%
Midterm Exam	35%
Final Exam	30%
<b>Total</b>	<b>100%</b>

## EXAM & Class POLICY:

Students are advised to prepare for any type of questions. **NO MAKE UP QUIZ, MID-TERM OR FINAL EXAM WILL BE ARRANGED UNLESS AN ABSOLUTELY UNAVOIDABLE VALID REASON FOR ABSENCE IS FOUND.** For such unavoidable circumstances, written explanation of the situation must be submitted before the exam. If any class test or mid-term exam cannot be held on the due date, the exam will be automatically shifted to the very next available class, unless otherwise announced.

## EXAM NOTICE:

Prior notices for exams will be provided in the class, except for a sudden quiz. No excuse will be granted simply because someone was absent at previous class and did not know the exam notice.

## GRADING POLICY:

Generally, NSU grading policy will be followed. However, minor deviation is still possible depending on the situation.

**CODE OF CONDUCT:**

It is highly requested to maintain discipline in the class like not to be late, refrain from making noise during lecture time, not to leave the class early. If someone is more than 10 minutes late in the class, (s)he may not get attendance for the class. Adopting unfair means in the exams will be considered as a serious crime and the student shall be placed to the university disciplinary committee. Evidence of copying assignments shall be seriously punished.

**SEMESTER PLAN:**

CEE 240					
Mid & Final Exam Plan					
Exam	Topic	Type	Date	Marks	Percentage
Mid 1	1,2,3,4,5,6,7	Problem Solving	11/7/2018	100	35%
Final Part 2	8,9,10,11,12	Problem Solving	Official NSU date	100	30%

Detailed Semester Plan (CEE 240)					
#	Date	Topic	Assignment	Quiz	Exam
1	28/5/2018	Soil Formation and Deposits			
2	30/5/2018	Phase Relationship			
3	4/6/2018	Index Properties of Soil			
4	6/6/2018	Soil Classification	Assignment 1		
5	11/6/2018	Soil compaction	Submission 1		
6	13/6/2018	Holiday			
7	18/6/2018	Holiday			
8	20/6/2018	Soil compaction	Assignment 2		
9	25/6/2018	Permeability +Quiz 01	Submission 2	<b>Q1</b>	
10	27/6/2018	Permeability			
11	2/7/2018	Seepage			
12	4/7/2018	Seepage			
13	9/7/2018	Seepage			
14	11/7/2018	Midterm Exam	Assignment 3		<b>Mid</b>
15	16/7/2018	Total & effective Stresses	Submission 3		
16	18/7/2018	Total & effective Stresses			
17	23/7/2018	Stresses in a soil mass +Quiz 2		<b>Q2</b>	
18	25/7/2018	Stresses in a soil mass	Assignment 4		
19	30/7/2018	One-dimensional consolidation	Submission 4		
20	1/8/2018	One-dimensional consolidation			
21	6/8/2018	Shear strength of soil	Assignment 5		
22	8/8/2018	Shear strength of soil	Submission 5		
23	13/8/2018	Shear strength of soil	Assignment 6		
24	15/8/2018	Lateral Stress+Quiz3	Submission 6	<b>Q3</b>	
28	20/8/2018	Holiday			
29	22/8/2018	Holiday			
30	27/8/2018	Holiday			
31	28/8/2018	Review Class			
32	TBA	Final Exam			<b>Final</b>

\*\* The number of lectures per topic is approximate. Order of lectures may be switched around.