North South University

Department of Civil and Environmental Engineering (CEE)

CEE 340: Advanced Foundation Engineering

Summer 2018

Course Syllabus

INSTRUCTOR: Dr. Minhaz M. Shahriar
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CLASS HOURS: **Sec 1 – ST 9:40 am – 11:10 am (SAC 213)**
Sec 2 – ST 1:00 pm – 2:30 pm (SAC 316)

OFFICE HOURS: **ST 11:30 am – 12:30 pm**
ST 2:30 pm – 3:30 pm

OFFICE: **SAC 728**

COURSE DESCRIPTION (3 Credits):

Subsoil investigation; Types of foundations; Bearing capacity and settlement of shallow foundations; Bearing capacity and settlement of pile foundations; Slope stability; Earth retaining structures. Prerequisite: CEE240. 3 credits.

COURSE OBJECTIVES:

1. Build upon knowledge acquired in CEE 240.
2. Develop deeper understanding of foundation analysis.
3. Develop understanding of choice of design parameters.
4. Learn about advanced topics in foundation design and analysis.

COURSE OUTCOMES (CO'S):

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

CO 1. Determine suitable soil parameters.
CO 2. Identify applicable theory to solve practical problem under consideration.
CO 3. Design shallow and deep foundations, retaining walls, and slopes. To define different types of soil and their engineering properties.
CO 4. Utilize their knowledge in soil mechanics to perform different types of engineering calculations. This includes consolidation analysis for foundations, and stability analysis of slopes and retaining walls.

TEXT BOOK:

1. Principles of Foundation Engineering – Braja M Das (7^{th} Edition)
2. Foundation Engineering- Peck & Henson (2^{nd} Edition)

REFERENCES:

3. Craig's Soil Mechanics – R. F Craig
4. Foundation Design & Construction – M. J Tomlinson
5. Foundation analysis and design – Joseph E Boewls

COURSE CONTENTS:

1	Lateral Earth Pressure
2	Earth Retaining Structure
3	Stability of Slope
4	Settlement Computations
5	Soil Investigation Techniques
6	Analysis & Design of Shallow Foundations
7	Analysis & Design of Deep Foundations

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	30%
Final Exam	35%
Total	**100%**

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 340					
Mid & Final Exam Plan					
Exam	Topic	Type	Date	Marks	Percentage
Mid 1	1,2,3,4	Problem Solving	10/7/2018	100	30%
Final Part 2	5,6,7	Problem Solving	Official NSU date	100	35%

Detailed Semester Plan (CEE 340)					
#	Date	Topic	Assignment	Quiz	Exam
1	27/5/2018	Introduction & Review			
2	29/5/2018	Lateral Earth Pressure			
3	3/6/2018	Lateral Earth Pressure			
4	5/6/2018	Lateral Earth Pressure	Assignment 1		
5	10/6/2018	Earth Retaining Structure	Submission 1		
6	12/6/2018	Earth Retaining Structure			
7	17/6/2018	Holiday			
8	19/6/2018	Earth Retaining Structure	Assignment 2		
9	24/6/2018	Stability of Slope +Quiz 01H	Submission 2	Q1	
10	26/6/2018	Stability of Slope			
11	1/7/2018	Stability of Slope	Assignment 3		
12	3/7/2018	Settlement Computations	Submission 3		
13	8/7/2018	Settlement Computations	Assignment 4		
14	10/7/2018	Midterm Exam	Submission 4		Mid
15	15/7/2018	Soil Investigation Techniques			
16	17/7/2018	Soil Investigation Techniques	Assignment 5		
17	22/7/2018	Design of Shallow foundations	Submission 5		
18	24/7/2018	Design of Shallow foundations			
19	29/7/2018	Design of Shallow foundations			
20	31/7/2018	Design of Shallow foundations	Assignment 6	Q2	
21	5/8/2018	Design of Shallow foundations	Submission 6		
22	7/8/2018	Design of Deep foundations			
23	12/8/2018	Design of Deep foundations			
24	14/8/2018	Design of Deep foundations	Assignment 7	Q3	
25	19/8/2018	Review Class	Submission 7		
26	TBA	Final Exam			Final

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