

Department of Civil Engineering			
Foundation Engineering (61431)			
Total Credits	3		
major compulsory			
Prerequisites	P1 : Geology and Soil Mechanics (68300) OR Soil Mechanics (61331) OR Soil Mechanics (61302)		
Course Contents			
This course begins with review of soil mechanics and introduction to subsurface exploration. Then it covers bearing capacity of shallow foundation, stress distribution and foundation settlement. Then it moves to lateral earth pressure and retaining structures. This course ends with an introduction to the pile foundation system. It includes computer applications.			
Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution	
1	Have good understanding of site investigation.	A	5 %
2	Evaluate bearing capacity for different types of soil and different cases for shallow foundations.	A	30 %
3	Estimate settlement for shallow foundations.	E	15 %
4	Evaluate Lateral earth pressure and understand the behavior of retaining walls.	E	25 %
5	Ability to analyze and design pile foundation.	A	25 %
Textbook and/ or References			
1. Principles of Foundation Engineering, Braja M. Das, Sixth Edition, PWS-KENT, 2007. 2. Foundation Analysis and Design, Joseph E. Bowles, Fifth Edition, McGraw-Hill, Inc., 1997. 3. Other references will be furnished during the semester.			
Assessment Criteria		Percent (%)	
First Exam		20 %	
Second Exam		20 %	
Homeworks		10 %	
Final Exam		50 %	
Course Plan			
Week	Topic		
1	Geotechnical Properties of Soil (Review)		
2	Introduction to Subsurface Exploration		
3	Shallow Foundation: Ultimate Bearing Capacity		
4	Shallow Foundation: Ultimate Bearing Capacity		
5	Shallow Foundation: Ultimate Bearing Capacity of Special Cases		
6	MIDTERM EXAM 1		
7	Shallow Foundation: Settlement		
8	Combined and Mat Foundation		
9	Combined and Mat Foundation		
10	Lateral Earth Pressure		
11	MIDTERM EXAM 2		
12	Lateral Earth Pressure		
13	Retaining Walls		
14	Deep Foundation: Pile Foundation		
15	Deep Foundation: Pile Foundation		
16	Final Exam		