



Course Weekly Outline

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Course name	Foundation engineering-2			
Course objective	When the student complete studying this course, he should be able to: 1. Determine the allowable axial load capacity of single pile and pile group. 2. Estimation of pile load in a pile group. Determine the stability of earth structures.			
Course description	This course is intended to; 1. Determine the allowable axial load capacity of single piles and pile groups. 2. Determine the settlement of single pile and pile groups. 3. Understand and determine lateral earth pressure. 4. Understand the forces that lead to instability of earth retaining structures. Determine the stability of earth retaining structures (retaining walls, sheet pile walls, braced excavation).			
References	Foundation Analysis and Design By; Joseph E. Bowles			
External sources	Principles of Foundation Engineering – Ninth Edition By; Braja M. Das and Nagaratnam Sivakugan			
Course assessment	Lab.	Quizzes and assessment	Mid-term exam	Final exam
		40	10	50
General notes				



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Week No.	Theoretical	Experimental	Aims
1	Pile Foundations: Single Pile Analysis; Introduction, Classification of Piles,		This course is intended to; 1. Determine the allowable axial load capacity of single piles and pile groups. 2. Determine the settlement of single pile and pile groups. 3. Understand and determine lateral earth pressure. 4. Understand the forces that lead to instability of earth retaining structures. Determine the stability of earth retaining structures (retaining walls, sheet pile walls, braced excavation).
2	Pile Capacity, Point Bearing Capacity, Point Bearing from Field Tests, SPT, CPT,		
3	Pile Capacity, Point Bearing Capacity, Point Bearing from Field Tests, SPT, CPT,		
4	Skin Friction Capacity, Pile Loading Test-Axial Compression (ASTM-D1143),		
5	Pile Capacity – Dynamic Analysis		
6	Pile Foundations: Groups; Introduction, The Carrying Capacity of Pile Groups,		
7	Efficiency of Pile Groups, Settlement of Pile Groups, Pile Caps, Negative Skin Friction		
8	Efficiency of Pile Groups, Settlement of Pile Groups, Pile Caps, Negative Skin Friction		
9	Lateral Earth Pressure; Introduction, Coulomb Earth Pressure Theory, Rankine Earth Pressures		
10	Lateral Earth Pressure; Introduction, Coulomb Earth Pressure Theory, Rankine Earth Pressures		
11	Retaining Walls; Introduction, Stability of Retaining Walls, Base Key.		
12	Sheet Pile Walls; Introduction, Types of sheet piling, Safety Factor, Cantilever Sheet piling,		
13	Sheet Pile Walls; Introduction, Types of sheet piling, Safety Factor, Cantilever Sheet piling,		
14	Anchored Sheet piling: Free-Earth Support, Capacity of Dead man, Location of Dead man.		
15	Anchored Sheet piling: Free-Earth Support, Capacity of Dead man, Location of Dead man.		