

Branch Name:	Civil Engineering (Structural Engineering)
Semester/Year:	Semester I / First Year
Subject Title:	Advanced Foundation Engineering Practical
Subject Code:	2ET2060104P
Pre-requisite Subject:	Geotechnical Engineering

Course Objective:

1. To understand the different types of foundation required for different types of soil and site conditions.
2. To provide the necessary geotechnical engineering skills to analyze and design shallow and deep foundation systems under different loading and soil conditions.
3. To analyze the foundation for dynamic and vibration loads.
4. To understand the behaviour of expansive soils, liquefaction and soil-structure interaction

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								Total (Marks)
					Theory (Marks)				Practical (Marks)				
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
1	-	-	2	2	-	-	-	-	10	25	10	25	50

List of Experiments:

1. Standard and Modified Proctor Compaction Test;
2. Permeability test;
3. Direct Shear Test;
4. Triaxial Shear Test (CU, CD, UU);
5. C.B.R. Test (Un-soaked & soaked);
6. Consolidation Test.,
7. Field Density Test,
8. Unconfined Compressive Test,
9. Swelling Pressure Test.

List of References:

1. Kaniraj SR, "Design Aids in Soil Mech. And Foundation Engg. ", Tata McGraw Hill.
2. Swami Saran, Gopal Ranjan, "Analysis & Design of Foundations & Retaining Structures", Sarita Prakashan.
3. Nainan P Kurian, "Design of Foundation Systems", Narose Pub. House.
4. J. E. Bowles, "Foundation Analysis and Design", McGraw Hill
5. Analysis and design of foundation - J. Bowles
6. Foundation design - Teng
7. Principles of foundation Engg. - Braj Das
8. Pile foundation - M.J. Tomlinson
9. Handbook of foundation Engg. - Fang & Winker Korn

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Select appropriate foundation system for different structures,	L-1 and L-2
CLO2	Design shallow foundations that satisfy the allowable bearing capacity and settlement requirements based on soil properties	L-3 L-4 and L-5
CLO3	Design deep foundation satisfying bearing capacity and settlement requirements,	L-5
CL04	Design of machine foundation under static and dynamic loads	L-4 and L-5
CL05	Evaluate the liquefaction potential of soil deposits.	L-4 L-5 and L6

L1- Remember, L2- Understand, L3- Apply, L4- Analyze, L5- Evaluate, L6- Create

Mapping of CLOs with POs & PSOs

	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
Course Learning Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
CLO1	M	M		M		M	M	M	M				M		
CLO2	M	M	M	M		M	M	M	M			M	M		M
CLO3	M	M	M	M	H	M	M	M	M			H	M	H	M
CL04	M	M	M	M	H	M	M	M				M	M	M	M
CL05	M	M	M	M	H	M	M	M				M	M	M	

H: High, M: Medium, L: Low