

**TENTATIVE TEACHING PLAN (THEORY)**Department: **Civil Engineering**Name of Teacher: **Engr. Lal Chand**Subject: **Foundation Engineering**Course Code: **CE426**Batch: **19CE (C+D)**Year: **4th**Semester: **2nd (8th)**Semester Starting Date: **03-07-2023**Semester Suspension Date: **20-10-2023****Course Learning Outcomes (CLOs):** Upon successful completion of the course, the student will be able to:

CLO	Description	Taxonomy Level	PLO
1	DISCUSS soil investigation techniques, in situ tests and equipment.	C2	5
2	DESIGN shallow and pile foundations discuss earthen dam components and design parameters	C6	3

S #	Topic	CLO's	No: of lecture/hrs. required
1.	Introduction to the subject, Course outline, Reference books	1	1
2.	Importance of soil exploration and planning of soil exploration program.	1	1
3.	Soil exploration methods: probing, test pits, auger boring	1	2
4.	Wash percussion and rotary drilling and geophysical methods	1	1
5.	Stabilization of Bore Holes	1	1
6.	Soil samplers: disturbed and undisturbed sampling.	1	1
7.	In situ tests: standard penetration test, cone penetration test, and field vane shear test.	1	1
8.	Coring of rocks, core recovery and RQD.	1	1
9.	Borehole logs and sub soil exploration report.	1	1
10.	Purpose and types of foundations. Selection of foundation type.	2	1
11.	Types of bearing capacities of foundation. Gross and net pressures on footing.	2	1
12.	Failure modes in foundations and their characteristics and criterion. General requirements for foundation design.	2	2
13.	Techniques to obtain bearing capacity of shallow foundations. Development of bearing capacity theory.	2	1
14.	Terzaghi's theories to calculate bearing capacity. Effects of water table. Design of strip, isolated, combined and raft footings.	2	3
15.	Bearing capacity theories of Meyerhof's, Hansen's, Vesic's and Skempton's.	2	3
16.	Elastic settlement of shallow foundations based on theory of elasticity. Elastic and consolidation settlement of shallow foundations on saturated clays. Settlement of sandy soil. Presumptive values.	2	3
17.	Plate load test. Settlement and bearing pressure measurements and interpretations	2	2
19.	Problems on geotechnical design of shallow foundations	2	3
20.	Introduction to deep foundations. Types of deep foundations. Reasons to use piles. Classification of piles. Methods of installation	2	2
21.	Load transfer mechanism of piles, Load carrying capacity of piles in different soils. Negative skin friction. Empirical relationships.	2	2
22.	Settlement of Piles. Pull out resistance of piles.	2	2
23.	Pile driven formulas. Pile load test.	2	2
24.	Group piles: Group efficiency, elastic and consolidation settlement of group piles, up lift capacity of group piles.	2	2
25.	Problems on geotechnical design of pile foundations	2	3
26.	Foundation on layered soils, foundation on collapsible soils, foundations on expansive soils	2	2
27.	Types of earthen dams, components and their functions.	3	2
28.	General design considerations and typical cross-section	3	2
TOTAL			48



Signature of Teacher:

Dated: 20-06-2023

Remarks of DMRC: **APPROVED**



Signature of Chairman

Dated: 01-08-2023