Department of Civil Engineering, RTU, Kota.
Lecture Plan Geotechnical Engineering II
B.Tech VI Semester
(Dr.N.P.Kaushik)

S.No.	Chapter/Unit	Lecture	Contents of the Lecture
1	**Stresses in Soil under surface loading**	1	**Introduction to Scope of Subject**
		2	Bossinesq's analysis for vertical pressure and its distribution in a soil mass. Vertical stresses due to concentrated loads Horizontal and shear stresses due to concentrated loads.
		3	Vertical stress distribution on a horizontal plane. Influence diagram.
		4	Vertical stresses at a point under circular Load. Vertical stresses at point under line load and strip load.
		5	Vertical stresses at a point under rectangular loaded area. Approximate methods of obtaining vertical pressure due to surface loading.
		6	Isobar diagram, Pressure bulb and its significance in Foundation exploration. Newmark Chart for obtaining stresses under loaded area.
		7	Westergaard's, analysis for vertical pressure and its distribution in a soil mass. Fensk's Chart.
		8	Contact pressure below foundations. Review of the Chapter.
2	**Compressibility and Consolidation**:	9	Introduction to consolidation, comparison of compaction and consolidation.
		10	Spring Analogy. Initial Primary and Secondary Consolidation. Factors affecting Consolidation.
		11	Consolidation Test in Laboratory, Compressibility parameters, Determination of Void ratio.
		12	Terzaghis one dimensional consolidation theory, Degree of consolidation.
		13	Co-efficient of consolidation and its determination.
		14	Preconsolidation pressure and its

			determination. Normally, Over and Under consolidated soils.
		15	Methods of computation of Settlement and its rate.
		16	Coefficient of consolidation for layered soil. Total and differential Settlement.
		17	Review of the Chapter
3	**Stability of Slopes**	18	Introduction to Slope Stability, Classifications of slopes.
		19	Stability analysis of infinite slopes in Non Cohesive Soils.
		20	Stability analysis of infinite slopes in Cohesive Soils.
		21	Stability analysis of finite slopes by Swedish circle Method.
		22	Stability analysis of finite slopes by Friction circle Method, Stability Analysis by Taylor's Stability Number.
		23	Stability of slopes of earthen embankments under sudden draw down, steady seepage and during construction.
		24	Bishop's method of stability analysis. Review of the Chapter.
4	**Earth Pressure**	25	Introduction, Active, passive and earth pressure at rest. Rankine's theory of earth pressure for cohesion less backfills.
		26	Earth Pressure distribution in Non Cohesive Soils.
		27	Earth Pressure distribution in Non Cohesive Soils.
		28	Coulomb's. vertical and inclined back retaining walls, horizontal and inclined cohesion.
		29	Rebhann's graphical methods for active earth pressure .
		30	Culman's graphical methods for active earth pressure .
		31	Earth pressure on cantilever sheet piles Stability analysis of retaining walls.
		32	Review of the Chapter
5	**Bearing Capacity of Soils &**	32	Introduction, Terminology related to bearing capacity, Common types of

	Site Investigations		foundations.
		33	Terzaghi and Meyehoff's theory for bearing capacity.
		34	Rankine's method for minimum depth of foundation. Skempton's method.
		35	Effect of eccentricity and water table on bearing capacity.
		36	Plate load and penetration tests for determining bearing capacity
		37	Introduction to pile, well and machine Foundations.
		38	Methods of explorations. Planning of Investigations, Depth of exploration, Number of boreholes, Undisturbed and Disturbed samples.
		39	Types of samplers. Brief description of procedures of sampling, Transportation and Storage of samples. Geophysical methods of investigations
		40	Review of the Chapter