

LESSON PLAN

Semester: 1ST

Subject: Advanced Soil Mechanics

Session: 2015-16

Theory/-Sessional

Branch/ Course: Civil Engineering/ M.Tech.

Name of the Faculty Member: Debabrata Giri

Period	Module/ Number	Topic to be covered	Remarks/ Sign. of Faculty Member
1	Module-I	Introduction	
2		Soil and its types	
3		Mineralogy and structure of clay minerals	
4		Mineralogy and structure of clay minerals	
5		X-ray Analysis	
6		Differential Thermal Analysis	
7		Structure of coarse grained soil	
8		Behavior of granular	
9		Behaviour cohesive soils	
10		Effect of water content on the behaviour of cohesive soil	
11	Module-II	Steady State flow	
12		2D and 3D seepage, Transient flow	
13		Compressibility and rate of consolidation,	
14		One, two, dimensional consolidation theories	
15		General theory of 3D consolidation assumptions	
16		Relation between instantaneous & final compressibility	
17		General Equation governing consolidation,	
18		Application to a standard soil test	
19		Sand drains Application and uses	
20	Module-III	Critical state soil mechanics:	
21		Critical State Line	
22		Hvorslev Surface	
23		Modified Cam-clay and Original Cam-clay	
24		Elements of modified Cam-clay	
25		Problem Discussion	
26		Constitutive relationships of soil	
27		failure theories	
28		Limit analysis	
29		Upper bound theorems, lower bound theorems	
30		limit equilibrium methods	
31		Application of limit equilibrium to a vertical cut	
32		Application of limit equilibrium to earth pressure against retaining wall	
33		Assignment problem discussion	
34		Soil Stabilization:	
35		Classification of stabilizing agents	
36	stabilization processes.		

37		Problem Discussion	
38	Module-IV	Nature of soil particle	
39		Surface area concept and characteristics	
40		Contact points	
41		Role of particle shape on soil behaviour	
42		Problem Discussion	
43		Inorganic stabilizing agents	
44		Strength improvement characteristic of soft clay	
45		Strength improvement characteristic of Sensitive clay	
46		Concept of Marine clay, Geotechnical properties of Marine clay	
47		Over coming Problems with Marine Clays	
48		waste material & its treatment	

Signature of Faculty Member:

Date:

Counter Signature of H.O.D.