

Jharsuguda Engineering School, Jharsuguda

Lesson Plan

Geotechnical Engineering (Th-5)

Department: Civil Engineering

Course: Geotechnical Engineering

Semester: 3rd Semester


Total Contact Hours: 45 (3 periods/week × 15 weeks)

Faculty: Swapnashish Patel, Sr. Lecturer (Civil)

Week	Period No.	Unit No. & Title	Topic to be Covered	Teaching-Learning Activities / Aids	Assessment / Task	Remarks
1	1-3	Unit I – Overview of Geology & Geotechnical Engg.	Introduction to geology, rocks classification, engineering uses.	Chalk & Talk, PPT	-	
2	4-6	Unit I & II	Soil as three-phase system, water content, void ratio, porosity.	Chalk & Talk, PPT	-	
3	7-9	Unit II – Physical & Index Properties	Unit weight of soils, specific gravity, Atterberg limits.	PPT + Numerical	Oral quiz	
4	10-12	Unit II	Particle size distribution, BIS classification, numericals.	Board + Problem Solving	Assignment 1	
5	13-15	Unit III – Permeability & Seepage	Darcy's law, constant/falling head tests, flow net concepts.	PPT + Numerical	-	
6	16-18	Unit III	Seepage velocity, seepage pressure, quicksand condition.	Chalk & Talk	-	
7	19-21	Unit IV – Compaction	Proctor tests, compaction curve, field compaction methods.	PPT + Demo	Quiz 1	
8	22-24	Unit IV	Consolidation, Terzaghi model, soil stabilization.	Case studies	-	
9	25-27	Unit IV	CBR test, soil exploration, field ID tests.	PPT	Assignment 2	
10	28-30	Unit V – Shear Strength	Shear failure, Mohr-Coulomb, direct shear test.	Chalk & Talk + Lab Plan	-	

11	31-33	Unit V	Triaxial & vane shear tests, $c-\phi$ values.	PPT	Class Test 1	
12	34-36	Unit VI - Bearing Capacity	Ultimate, safe, allowable bearing pressure, Terzaghi theory.	Chalk & Talk	-	
13	37-39	Unit VI	Plate load & SPT tests (IS 1888, IS 2131).	PPT	-	
14	40-42	Unit VI	Earth pressure, Rankine theory.	Chalk & Talk	-	
15	43-45	Unit VI	Types of foundations, revision & wrap-up.	Summary PPT	Assignment 2 submission	

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14.07.2015
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14/7/15
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