

# LESSON PLAN

Discipline: civil engineering

Name of The Teaching  
Faculty: Jyotirmayee Samal

Subject: Geotechnical Engineering (TH2) Semester From Date: 01-10-2021 To Date 08-01-2022

SEMESTER-3rd

No. Of Weeks: 14

4P/WEEK

No. of Days/week class allotted: 04 period per week (Mon, Wed, Fri & Saturday 1 Period)

TOTAL PERIOD-60

MONTH	WEEK	DATE	DAYS/PERIOD	SYLLABUS TO BE COVERED	NOS. OF PERIODS AVAILABLE	
				<b>1: INTRODUCTION (2P)</b>		
Oct	2nd	04.10.2021	MON	1.1- Soil and Soil Engineering. 1.2- Scope of Soil Mechanics.	1	
		08.10.2021	FRI	1.3 Origin and formation of soil		
				<b>2: PRELIMINARY DEFINITIONS AND RELATIONSHIP (6P)</b>		
		09.10.2021	SAT	2.1 Soil as a three Phase system.	1	
		4th	22.10.2021	FRI	2.2 Water Content, Density, Specific gravity, Voids ratio, Porosity, Percentage of air voids, air content,	1
	23.10.2021		SAT	Degree of saturation, density Index, Bulk/Saturated/dry/submerged density, Interrelationship of various soil parameters	1	
		5th	25.10.2021	MON	Numerical problems	1
	27.10.2021		WED	Numerical problems	1	
	29.10.2021		FRI	Numerical problems	1	
				<b>3. INDEX PROPERTIES OF SOIL (4P)</b>		
		30.10.2021	SAT	3.1- Water Content	1	
		01.11.2021	MON	3.2- Specific Gravity	1	
		03.11.2021	WED	3.3- Particle size distribution, Sieve analysis, wet mechanical analysis, particle size distribution curve and its uses	1	

NOV	1st	5.11.2021	FRI	3.4 – Consistency of Soils, Atterberg’s Limits, Plasticity Index, Consistency Index, Liquidity Index	1
				<b>4. CLASSIFICATION OF SOIL. (6P)</b>	
		6.11.2021	SAT	4.1- General.	1
	2nd	8.11.2021	MON	4.1- General.	1
		10.11.2021	WED	4.2 I.S. Classification,	1
		12.11.2021	FRI	4.2 I.S. Classification	1
		13.11.2021	SAT	Plasticity chart	1
	3rd	15.11.2021	MON	CLASS TEST	1
				<b>5 .PERMEABILITY AND SEEPAGE (7P)</b>	
		17.11.2021	WED	5.1- Concept of Permeability, Darcy’s Law, Co-efficient of Permeability,	1
		20.11.2021	SAT	5.1- Concept of Permeability, Darcy’s Law, Co-efficient of Permeability,	1
		22.11.2021	MON	5.2- Factors affecting Permeability.	1
	4th	24.11.2021	WED	5.3- Constant head permeability	1
		26.11.2021	FRI	5.3-falling head permeability Test.	1
		27.11.2021	SAT	5.4- Seepage pressure, Phenomenon of quick sand	1
		29.11.2021	MON	5.4- Seepage pressure, Phenomenon of quick sand	1
	1st			<b>6 .COMPACTION AND CONSOLIDATION(8P)</b>	
		1.12.2021	WED	6.1- Compaction, Light and heavy compaction Test,	1
		3.12.2021	FRI	Optimum Moisture Content of Soil, Maximum dry density, Zero air void line	1
		4.12.2021	SAT	Factors affecting Compaction, Field compaction methods and their suitability	1
6.12.2021		MON	numericals	1	
8.12.2021		WED	6.2- Consolidation, distinction between compaction and consolidation.	1	
10.12.2021		FRI	6.2- Consolidation, distinction between compaction and consolidation.	1	

DEC	2nd	11.12.2021	SAT	Terzaghi's model analogy of compression/ springs showing the process of consolidation	1	
	3rd	13.12.2021	MON	Terzaghi's model analogy of compression/ springs showing the process of consolidation	1	
		15.12.2021	WED	6.5- Terzaghi's model analogy of compression/ springs showing the process of consolidation – field implications		
				<b>7 SHEAR STRENGTH (6P)</b>		
		17.12.2021	FRI	7.1- Concept of shear strength	1	
		18.12.2021	SAT	, Mohr- Coulomb failure theory, Cohesion,	1	
	4th	20.12.2021	MON	Angle of internal friction, strength envelope for different type of soil,	1	
		22.12.2021	WED	7.2- Measurement of shear strength;- Direct shear test,	1	
		24.12.2021	FRI	Triaxial shear test,	1	
	5th	27.12.2021	MON	Unconfined compression test and vane-shear test	1	
				<b>8 EARTH PRESSURE ON RETAINING STRUCTURES. (7P)</b>		
		29.12.2021	WED	8.1- Active earth pressure,	1	
		31.12.2021	FRI	Passive earth pressure, Earth pressure at rest.	1	
		2nd	03.1.2022	MON	8.2- Use of Rankine's formula for the following cases (cohesion-less soil only)	1
	JAN		5.1.2022	WED	NUMERICAL PROBLEMS	1
		07.1.2022	FRI	NUMERICAL PROBLEMS	1	
		08.01.2022	SAT	(i) Backfill with no surcharge, (ii) backfill with uniform surcharge	1	
				NUMERICAL PROBLEMS	1	
				<b>9 FOUNDATION ENGINEERING.(14)</b>		
				9.1- Functions of foundations, shallow and deep foundation,	1	
				Different type of shallow foundations with sketches.	1	
				Different type of deep foundations with sketches.	1	
				Types of failure (General shear, Local shear & punching shear)	1	
		EXTRA CLASS			9.2- Bearing capacity of soil,	1

		Bearing capacity of soils using Terzaghi's formulae &	<b>1</b>
		IS Code formulae for strip, Circular and square footings.	<b>1</b>
		Effect water table on bearing capacity	<b>1</b>
		9.3 Plate load test	<b>1</b>
		9.3 Plate load test and	<b>1</b>
		standard penetration test	<b>1</b>
		standard penetration test	<b>1</b>
		DOUBT CLEARING CLASS	<b>1</b>
		CLASS TEST	<b>1</b>

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# LESSON PLAN

Discipline: civil engineering

The Teaching Faculty: Lec

Subject: Railway and bridge Engineering (TH3)

Semester From  
Date 08-01-2022

SEMESTER-5th

No. Of Weeks: 14

No. of Days/week class allotted: 04 period per week (Mon, Tue, Wed & Fri-1 Period each)

MONTH	Week	DATE	DAYS	Topics to be covered
				<b>Introduction</b>
O C T O B E R	1ST	1/10/2021	FRI	1.1 Railway terminology
				1.2 Advantages of railways
	2ND	4/10/2021	MON	1.3 Classification of Indian Railways
		5/10/2021	TUE	<b>Permanent way</b> 2.1 Definition
		8/10/2021	FRI	components of a permanent way
	3RD	22/10/2021	FRI	2.2 Concept of gauge
	4TH	25/10/2021	MON	Different gauges prevalent in India
		26/10/2021	TUE	Suitability of these gauges under different conditions
		27/10/2021	WED	<b>Track materials</b> 3.1 Rails
		29/10/2021	FRI	3.1.1 Functions and requirement of rails

				<b>3.1.2 Types of rail sections, length of rails</b>
<b>N O V E M B E R</b>	<b>1ST</b>	1/11/2021	MON	3.1.3 Rail joints –
		2/11/2021	TUE	3.1.4 Purpose of
		3/11/2021	WED	3.1.5 Creep-
		5/11/2021	FRI	3.2 Sleepers
	<b>2ND</b>	8/11/2021	MON	3.2.1 Definition,
		9/11/2021	TUE	3.2.2 Classification of
				3.2.3 Advantages &
				<b>3.3 Ballast</b>
		10/11/2021	WED	<b>3.3.1 Functions &amp;</b>
		12/11/2021	FRI	3.3.2 Materials for
				3.4 Fixtures for Broad
				3.4.1 Connection of
				3.4.2 Connection of
				<b>Geometric for broad</b>
	<b>3RD</b>	15/11/2021	MON	4.1 Typical cross –
		16/11/2021	TUE	4.1 Typical cross –
		17/11/2021	WED	4.2 Permanent &
	<b>4TH</b>	22/11/2021	MON	4.3 Gradients for
		23/11/2021	TUE	4.4 Super elevation
		24/11/2021	WED	Necessity & limiting
		26/11/2021	FRI	Numerical problems
	<b>5TH</b>	29/11/2021	MON	Numerical problems
		30/11/2021	TUE	Numerical problems
<b>1ST</b>	1/12/2021	WED	Class test	
			<b>Points and crossings</b>	
	3/12/2021	FRI	5.1 Definition	
<b>2ND</b>	6/12/2021	MON	Necessity of Points	
	7/12/2021	TUE	5.2 Types of points	
	8/12/2021	WED	5.2 Types of crossings	
			<b>Laying &amp;</b>	

D E C E M B E R	3RD	10/12/2021	FRI	6.1 Methods of
		13/12/2021	MON	6.1 Methods of
		14/12/2021	TUE	6.2 Duties of a
		15/12/2021	WED	6.2 Duties of a
				<b>Section – B: BRIDGES</b>
				Introduction to
		17/12/2021	FRI	1.1 Definitions 1.2 Components of a
	4TH	20/12/2021	MON	1.3 Classification of 1.4 Requirements of
				<b>Bridge site</b>
		21/12/2021	TUE	2.1 Selection of
		22/12/2021	WED	2.2 Determination of
		24/12/2021	FRI	Numerical problems
			<b>2.3 Waterway &amp;</b>	
	5TH	27/12/2021	MON	2.4 Afflux
		28/12/2021	TUE	Clearance & free board
				<b>Bridge foundation</b>
		29/12/2021	WED	3.1 Scour depth
31/12/2021		FRI	Minimum depth of	
A N U A R	1ST	3/1/2022	MON	3.2 Types of bridge
		4/1/2022	TUE	Spread foundation
		5/1/2022	WED	Pile foundation- well
		7/1/2022	FRI	Sinking of wells,
E X T R A  C I				3.3 Cofferdams
				Class test
				<b>Bridge substructure</b>
				4.1 Types of piers
				4.2 Types of
				4.3 Types of wing
				4.4 Approaches
				Class test
				<b>Culvert &amp; Cause ways</b>

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			5.1 Types of culvers –
			5.1 Types of culvers –
			5.2 Types of
			5.2 Types of
			Class test

Dr. ANITA PRADHAN

Date:01-10-2021 To

4P/WEEK

TOTAL PERIOD-60

NO. OF PERIODS  
AVAILABLE

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