

# LESSON PLAN OF 5<sup>TH</sup> SEMESTER(2025-26) CIVIL ENGINEERING

Discipline :- CIVIL ENGG.	Semester:-5 <sup>TH</sup>	Name of the Teaching Faculty:- SWAGATIKA SAMAL(LECTURER)
Subject:- Railway and Bridge Engg.(Th.3)	No of Days/per Week Class Allotted :-04	Semester From:- <u>14/07/2025</u> To:- <u>15/11/2025</u>  No of Weeks:- 18
Week	Class Day	Theory/ Practical Topics
1 <sup>st</sup>	1 <sup>st</sup>	<b>Section-A: RAILWAYS</b> <b>1.Introduction :1.1</b> Railway terminology
	2 <sup>nd</sup>	1.2Advantages of railways 1.3Classification of Indian Railways
	3 <sup>rd</sup>	<b>2. Permanent way</b> 2.1Definition
	4 <sup>th</sup>	2.2components of a permanent way
2 <sup>nd</sup>	1 <sup>st</sup>	2.3Concept of gauge
	2 <sup>nd</sup>	2.4 gauges prevalent in India
	3 <sup>rd</sup>	2.5suitability of these gauges under different
	4 <sup>th</sup>	<b>3.Track materials</b> 3.1Rails 3.1.1Functions and requirement of rails
3 <sup>rd</sup>	1 <sup>st</sup>	3.1.2Types of rail sections , length of rails 3.1.3Rail joints – types, requirement of an ideal joint
	2 <sup>nd</sup>	3.1.4 Purpose of welding of rails & its advantage 3.1.5 Creep definition, cause & prevention
	3 <sup>rd</sup>	3.2 Sleepers 3.2.1Definition, function & requirements of sleepers 3.2.2 Classification of sleepers 3.2.3 Advantages & disadvantages of different types of sleepers
	4 <sup>th</sup>	3.3 Ballast 3.3.1 Functions & requirements of ballast 3.3.2 Materials for ballast
4 <sup>th</sup>	1 <sup>st</sup>	3.4 Fixtures for Broad gauge 3.4.1 Connection of rails to rail-fishplate, fish bolts 3.4.2 Connection of rails to sleepers
	2 <sup>nd</sup>	<b>4.Geometric for Broad gauge</b> 4.1Typical cross – sections of single
	3 <sup>rd</sup>	double broad gauge railway track in cutting
	4 <sup>th</sup>	embankment
5 <sup>th</sup>	1 <sup>st</sup>	4.2 Permanent & temporary land width
	2 <sup>nd</sup>	4.3 Gradients for drainage
	3 <sup>rd</sup>	4.4Super elevation – necessity & limiting valued
	4 <sup>th</sup>	Numerical problem
6 <sup>th</sup>	1 <sup>st</sup>	Numerical problem
	2 <sup>nd</sup>	Numerical problem
	3 <sup>rd</sup>	Numerical problem
	4 <sup>th</sup>	<b>5.0 Points and crossings</b>
7 <sup>th</sup>	1 <sup>st</sup>	5.1 Definition
	2 <sup>nd</sup>	necessity of Points and crossings
	3 <sup>rd</sup>	5.2 Types of points
	4 <sup>th</sup>	types of crossings with tie diagrams



8th	1st	crossings with tie diagrams
	2nd	<b>6.0 Laying &amp; maintenance of track</b>
	3rd	6.1 Methods of Laying
	4th	maintenance of track
9th	1st	6.2 Duties of a permanent way inspector
	2nd	<b>Introduction to bridges</b>
	3rd	1.1 Definitions
	4th	1.2 Components of a bridge
10th	1st	1.3 Classification of bridges
	2nd	1.4 Requirements of an ideal bridge
	3rd	Previous year question discussion
	4th	<b>2. Bridge site investigation, hydrology &amp; planning</b> introduction
11th	1st	2.1 Selection of bridge site,
	2nd	2.2 various type of alignment
	3rd	2.3 Determination of Flood Discharge
	4th	2.4 problem practice
12th	1st	2.5 previous year problem practice
	2nd	2.6 Afflux
	3rd	2.7 various type of afflux
	4th	2.8 clearance & free board
13th	1st	<b>3. Bridge foundation</b>
	2nd	3.1 Scour depth concept
	3rd	3.2 minimum depth of foundation
	4th	3.3 problem practice
14th	1st	3.4 Types of bridge foundations
	2nd	3.5 spread foundation
	3rd	3.6 pile foundation
	4th	3.7 Types of pile foundation
15th	1st	3.8 sinking of wells
	2nd	Previous year question discussion
	3rd	3.9 caisson foundation
	4th	3.10 coffer dam
16th	1st	3.11 Types of coffer dam
	2nd	3.12 assignment question discussion
	3rd	<b>Bridge substructure and approaches</b>
	4th	4.1 Types of piers
17th	1st	4.2 Types of abutments
	2nd	4.3 Types of wing walls
	3rd	4.4 Approaches
	4th	<b>5. Culvert &amp; Cause ways</b>
18th	1st	5.1 Types of culverts
	2nd	5.2 brief description
	3rd	Previous year question discussion
	4th	Previous year question discussion

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