

Discipline:CIVIL	Semester: 5TH	Name of Teaching Faculty:-Tapas Kumar Mallick
Subject:-RAILWAY & BRIDGE ENGG.	No of Days/Week Class allotted:- 04	Semester from date: 14/07/25 to 15.11.2025 No of Weeks: 15
Week	Claas Day	THEORY
1st	1st	1.INTRODUCTION: Railway terminology, advantages of railways
	2nd	Classification of Indian railways
	3rd	2.PERMANENT WAY: Definition and components of permanent way
	4th	concept of gauge
	1st	different gauge prevalent in India
2nd	2nd	suitability of these gauges under different conditions
	3rd	suitability of these gauges under different conditions
	4th	3.TRACK MATERIALS: Rails function and requirements of rail
	1st	Types of rail sections, length of rails
3rd	2nd	Rail joints – types, requirements of an ideal joint
	3rd	Purpose of welding of rails & its advantages
	4th	Creep- definition, cause & prevention
	1st	Sleepers: Definition, function & requirements of sleepers
4th	2nd	Classification of sleepers, Advantages & disadvantages of different types of sleepers
	3rd	Ballast: Functions & requirements of ballast
	4th	Materials for ballast, Fixtures for Broad gauge
5th	1st	Connection of rails to rail-fishplate, fish bolts, Connection of rails to sleepers
	2nd	4.Geometric for broad gauge: Typical cross – section
	3rd	single broad gauge railway track in cutting and embankment
	4th	double broad gauge railway track in cutting and embankment
6th	1st	Permanent & temporary land width
	2nd	Gradients for drainage
	3rd	Gradients for drainage
	4th	Gradients for drainage
7th	1st	Super elevation – necessity
	2nd	Super elevation-limiting values
	3rd	Numericals
	4th	Section – B: BRIDGES 1. Introduction to bridges: Definitions, Components of a bridge
	1st	Classification of bridges, Requirements of an ideal bridge

8th	2nd	<b>2.Bridge site investigation, hydrology &amp; planning:</b> Selection of bridge site, Alignment
	3rd	Determination of Flood Discharge
	4th	Waterway
9th	1st	economic span,Afflux
	2nd	clearance & free board
	3rd	<b>3.Bridge foundation:</b> Scour depth minimum depth of foundation
	4th	Types of bridge foundations
10th	1st	spread foundation
	2nd	pile foundation
	3rd	well foundation
	4th	sinking of wells
11th	1st	caisson foundation
	2nd	Coffer dams
	3rd	<b>4.Bridge substructure and approaches:</b> Types of piers
	4th	Types of abutments
12th	1st	Types of wing walls
	2nd	Types of wing walls
	3rd	Approaches
	4th	<b>5.Culvert &amp; Cause ways:</b> Types of culvers – brief description
13th	1st	Types of culvers – brief description
	2nd	Types of culvers – brief description
	3rd	Types of causeways – brief description
	4th	Types of causeways – brief description
14th		<b>A.RAILWAY SECTION: 5.Points and crossings:</b> Definition, necessity of Points and crossings
	1st	
	2nd	Definition, necessity of Points and crossings
	3rd	Types of points & crossings with tie diagrams
15th	1st	<b>6.Laying &amp; maintenance of track:</b> Methods of Laying
	2nd	maintenance of track
	3rd	maintenance of track
	4th	Duties of a permanent way inspector

11/9/25