

LESSON PLAN: (RAILWAY & BRIDGE ENGINEERING)		
Discipline :	CIVIL ENGINEERING	
Faculty :	ASHIS RANJAN PATEL	
Semester :	5TH	
Duration :	14 WEEKS (1ST AUGUST 2023 to 30TH NOVEMBER 2023)	
Work Load :	Lecture :	4 Lectures per week (50 minutes per Class)
Week	Week Day	Theory
1 st	1 st	Railway terminology. Advantages of railways
	2 nd	Classification of Indian Railways
	3 rd	Permanent way
	4 th	Definition and components of a permanent way
2 nd	5 th	Concept of gauge
	6 th	different gauges prevalent in India
	7 th	suitability of these gauges
	8 th	Rails ,Functions and requirement of rails
3 rd	9 th	Types of rail sections, length of rails
	10 th	Rail joints – types, requirement of an ideal joint
	11 th	Purpose of welding of rails & its advantages
	12 th	Creep- definition, cause & prevention
4 th	13 th	Definition, function & requirements of sleepers, Classification of sleepers
	14 th	Advantages & disadvantages of different types of sleepers , Ballast Functions & requirements of ballast
	15 th	Materials for ballast ,Fixtures for Broad gauge
	16 th	Connection of rails to rail-fishplate, fish bolts ,Connection of rails to sleepers
5 th	17 th	Geometric for broad gauge
	18 th	Typical cross
	19 th	sections of single & double broad gauge railway track in cutting and embankment
	20 th	Permanent & temporary land width
6 th	21 st	Gradients for drainage
	22 nd	Super elevation
	23 rd	necessity & limiting valued
	24 th	EXAMPLE 1 Gradients for drainage
7 th	25 th	EXAMPLE 2 Gradients for drainage
	26 th	EXAMPLE 3 Super elevation
	27 th	Points and crossings DEFINATION
	28 th	necessity of Points and crossings
8 th	29 th	Types of points & crossings with tie diagrams
	30 th	EXAMPLE 4
	31 st	Laying & maintenance of track
	32 nd	Methods of Laying
9 th	33 rd	maintenance of track
	34 th	Duties of a permanent way inspector
	35 th	Definitions .Components of a bridge
	36 th	Classification of bridges, Requirements of an ideal bridge
10 th	37 th	Selection of bridge site, Alignment
	38 th	Determination of Flood Discharge
	39 th	Waterway & economic span
	40 th	Afflux, clearance & free board
11 th	41 st	Bridge foundation

	42 nd	Scour depth minimum depth of foundation
	43 rd	Types of bridge foundations –
	44 th	spread foundation
12th	45 th	pile foundation
	46 th	well foundation
	47 th	sinking of wells
	48 th	caisson foundation
13th	49 th	Coffer dams
	50 th	Types of piers
	51 st	Types of abutments
	52 nd	Types of wing walls
14th	53 rd	Approaches
	54 th	Types of culvers – brief description
	55 th	Types of causeways – brief description
	56 th	Problems of culvers