LESSON PLAN: (RAILWAY & BRIDGE ENGINEERING)		
Discipline :	**CIVIL ENGINEERING**	
Faculty :	**ASHIS RANJAN PATEL**	
Semester :	**5TH**	
Duration :	**14 WEEKS (15th September 2022 to 22nd December 2022)**	
Work Load :	**Lecture :**	**4 Lectures per week (50 minutes per Class)**
Week	**Week Day**	**Theory**
1st	1st	Railway terminology. Advantages of railways
	2nd	Classification of Indian Railways
	3rd	Permanent way
	4th	Definition and components of a permanent way
2nd	5th	Concept of gauge
	6th	different gauges prevalent in India
	7th	suitability of these gauges
	8th	Rails ,Functions and requirement of rails
3rd	9th	Types of rail sections, length of rails
	10th	Rail joints – types, requirement of an ideal joint
	11th	Purpose of welding of rails & its advantages
	12th	Creep- definition, cause & prevention
4th	13th	Definition, function & requirements of sleepers, Classification of sleepers
	14th	Advantages & disadvantages of different types of sleepers , Ballast Functions & requirements of ballast
	15th	Materials for ballast ,Fixtures for Broad gauge
	16th	Connection of rails to rail-fishplate, fish bolts ,Connection of rails to sleepers
5th	17th	Geometric for broad gauge
	18th	Typical cross
	19th	sections of single & double broad gauge railway track in cutting and embankment
	20th	Permanent & temporary land width
6th	21st	Gradients for drainage
	22nd	Super elevation
	23rd	necessity & limiting valued
	24th	EXAMPLE 1 Gradients for drainage
7th	25th	EXAMPLE 2 Gradients for drainage
	26th	EXAMPLE 3 Super elevation
	27th	Points and crossings DEFINATION
	28th	necessity of Points and crossings
8th	29th	Types of points & crossings with tie diagrams
	30th	EXAMPLE 4
	31st	Laying & maintenance of track
	32nd	Methods of Laying
9th	33rd	maintenance of track
	34th	Duties of a permanent way inspector
	35th	Definitions .Components of a bridge
	36th	Classification of bridges, Requirements of an ideal bridge
10th	37th	Selection of bridge site, Alignment
	38th	Determination of Flood Discharge
	39th	Waterway & economic span
	40th	Afflux, clearance & free board
11th	41st	Bridge foundation

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