LESSON PLAN

Deparment: Civil Engineering	**Semester : 5TH SEC A**	**Name of the Teaching faculty: Sailaja bhuyan (Railway Engg.), Kalyani Mohanty (Bridge Engg.)**	
Subject :- Th 3. Railway And Bridge Engineering	**No.of Days/ week class allotted : 4**	**Semester from date: 01/07/2024 to 08/11/2024** **No. of Weeks :19** **Topics to be covered:-**	
Week	**Class Day**	**Topics**	**Remarks**
		Section A:- RAILWAY	
8th WEEK		**1. Introduction (2P)**	
	1st	1.1 Railway terminology	
9th WEEK	2nd	1.2 Advantages of railways 1.3 Classification of Indian Railways	
10th WEEK		**2. Permanent way (5)**	
	1st	2.1 Definition and components of a permanent way	
	2nd	2.1 Definition and components of a permanent way	
11th WEEK	1st	2.2 Concept of gauge, different gauges prevalent in India, suitability of these gauges under different conditions	
	2nd	2.2 Concept of gauge, different gauges prevalent in India, suitability of these gauges under different conditions	
12th WEEK	2nd	2.2 Concept of gauge, different gauges prevalent in India, suitability of these gauges under different conditions	
13th WEEK		**3.Track materials (10)**	
	1st	3.1 Rails 3.1.1 Functions and requirement of rails	
	2nd	3.1.2 Types of rail sections, length of rails 3.1.3 Rail joints – types, requirement of an ideal joint	
14th WEEK	1st	3.1.4 Purpose of welding of rails & its advantages	
	2nd	3.1.5 Creep- definition, cause & prevention	
15th WEEK	**PUJA VACATION**		
16th WEEK	1st	3.2 Sleepers	
	2nd	3.3 Ballast 3.3.1 Functions & requirements of ballast	
17th WEEK	1st	3.3.2 Materials for ballast	
	2nd	3.3.2 Materials for ballast 3.4 Fixtures for Broad gauge	
18th WEEK	1st	3.4.1 Connection of rails to rail-fishplate, fish bolts 3.4.2 Connection of rails to sleepers	
	2nd	3.4.2 Connection of rails to sleepers	
19th WEEK		**4. Geometric for broad gauge (10)**	
	1st	4.1Typical cross – sections of single & double broad gauge railway track in cutting and embankment	
	2nd	4.1Typical cross – sections of single & double broad gauge railway track in cutting and embankment	

EXTRA CLASSES REQUIRED		4.1Typical cross – sections of single & double broad gauge railway track in cutting and embankment	
		4.2 Permanent & temporary land width	
		4.3 Gradients for drainage	
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		4.4 Super elevation – necessity & limiting valued	
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		5. Points and crossings (4P)	
		5.1 Definition, necessity of Points and crossings	
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		5.2 Types of points & crossings with tie diagrams	
		5.2 Types of points & crossings with tie diagrams	
		6. Laying & maintenance of track (4P)	
		6.1 Methods of Laying & maintenance of track	
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		6.2 Duties of a permanent way inspector	
		Section B:- BRIDGES	
8th WEEK		**1. Introduction to bridges (2P)**	
	1st	1.1 Definitions 1.2 Components of a bridge	
	2nd	1.3 Classification of bridges 1.4 Requirements of an ideal bridge	
9th WEEK		**2. Bridge site investigation (5P)**	
	1st	2.1 Selection of bridge site, Alignment	
	2nd	2.2 Determination of Flood Discharge	
10th WEEK	1st	2.2 Determination of Flood Discharge	
	2nd	2.3 Waterway & economic span	
11th WEEK	1st	2.4 Afflux, clearance & free board	
		3. Bridge foundation (8P)	
	2nd	3.1 Scour depth minimum depth of foundation	
12th WEEK	1st	3.1 Scour depth minimum depth of foundatio	
	2nd	3.1 Scour depth minimum depth of foundatio	
13th WEEK	1st	3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caission foundation	
	2nd	3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caission foundation	
14th WEEK	1st	3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caission foundation	
	2nd	3.3 Coffer dams	
15th WEEK	**PUJA VACATION**		
16th WEEK	1st	3.3 Coffer dams	
		4. Bridge substructure and approaches (5P)	
	2nd	4.1 Types of piers	

17th WEEK	1st	4.1 Types of piers	
	2nd	4.2 Types of abutments	
18th WEEK	2nd	4.3 Types of wing walls	
19th WEEK	1st	4.4 Approaches	
		5. Culvert & Cause ways(5P)	
	2nd	5.1 Types of culvers – brief description	
EXTRA CLASSES REQUIRED		5.1 Types of culvers – brief description	
		5.1 Types of culvers – brief description	
		5.2 Types of causeways – brief description	
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Bhujan

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