Deparment: Civil Engineering	Semester : 5th	Name of the Teaching faculty: LAXMIPRIYA SWAIN	
Subject :- Th3. RAILWAY & BRIDGE ENGG.	No.of Days/ week class allotted : 04/week	Semester from date: 15/09/2022 to 22/12/2022 No. of Weeks :15 Topics to be covered:-	
		Section – A: RAILWAYS	
Week	**Class Day**	**Topics**	**Remarks**
		Introduction	
1 st Week: (15 th Sept- 17th Sept)	1st	1.1 Railway terminology 1.2 Advantages of railways 1.3 Classification of Indian Railways	
		Permanent way	
	2nd	2.1 Definition and components of a permanent way	
2 nd Week: (19 th Sept - 24 th Sept)	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	
	3rd	2.2 Concept of gauge, different gauges prevalent in India, suitability of these gauges under different conditions	
		Track materials	
3 rd Week: (26 th Sept-1st Oct)	1st	3.1 Rails 3.1.1 Functions and requirement of rails 3.1.2 Types of rail sections, length of rails	
	2nd	3.1.3 Rail joints – types, requirement of an ideal joint	
	3rd	3.1.4 Purpose of welding of rails & its advantages 3.1.5 Creep- definition, cause & prevention	
4th week	**vacation**		
5 th Week: (10 th Oct- 15 th Oct)	1st	**3.2 Sleepers :** 3.2.1 Definition, function & requirements of sleepers 3.2.2 Classification of sleepers 3.2.3 Advantages & disadvantages of different types of sleepers	
		3.3 Ballast :	

	2nd	3.3.1 Functions & requirements of ballast	
	3rd	3.3.2 Materials for ballast	
		3.4 Fixtures for Broad gauge :	
6 th Week: (17 th Oct- 22 nd Oct)	1st	3.4.1 Connection of rails to rail - fishplate, fish bolts	
		4.0 GEOMETRIC FOR BROAD GAUGE :	
	2nd	4.1 Typical cross-sections of single broad gauge railway track in cutting and embankment	
	3rd	4.1 Typical cross-sections of single broad gauge railway track in cutting and embankment	
7 th Week: (25 th Oct- 29th Oct)	1st	4.1 Typical cross-sections of double broad gauge railway track in cutting and embankment	
	2nd	4.2 Permanent & temporary land width	
	3rd	4.2 Permanent & temporary land width	
8 th Week: (31st oct- 5th Nov)	1st	4.3 Gradients for drainage	
	2nd	4.4 Super elevation - necessity & limiting valued	
	3rd	4.4 Super elevation - necessity & limiting valued	
		5.0 POINTS & CROSSINGS	
9 th Week: (7 th Nov -12 th Nov)	2nd	5.1 Definition, necessity of Points and crossings	
	3rd	5.1 Definition, necessity of Points and crossings	
10 th Week: (14 th Nov -19 th Nov)	1st	5.2 Types of points & crossings with tie diagrams	
		6.0 LAYING & MAINTENANCE OF TRACK :	
	2nd	6.1 Methods of Laying & maintenance of track	
	3rd	6.1 Methods of Laying & maintenance of track	
11 th Week: (21st Nov - 26 th Nov)	1st	6.2 Details of a permanent way inspector	
		SECTION B - BRIDGES	
		1. INTRODUCTION TO BRIDGES	
11 th Week: (21st Nov - 26 th Nov)	2nd	1.1 Definitions	
	3rd	1.3 Classification of bridges	
		2. BRIDGE SITE INVESTIGATION, HYDROLOGY & PLANNING :	
12 th Week: (28 th Nov -3 rd) Dec	1st	2.1 Selection of bridge site 2.2 Bridge alignments 2.3 Determination of flood discharge	
	2nd	2.4 Waterway & economic span	

	3rd	2.5 Afflux, clearance & free board	
13 th Week: (5 th Dec -10 th Dec)	1st	2.6 Collection of bridge design data & sub surface investigation	
		3. BRIDGE FOUNDATION	
	2nd	3.1 Scour depth minimum depth of foundation	
	3rd	3.1 Scour depth minimum depth of foundation	
14 th Week: (12 th Dec-17th Dec)	1st	3.2 Types of bridge, foundations - spread foundation, pile foundation	
	2nd	3.2 Pile driving, well foundation - sinking of wells, caission foundation	
	3rd	3.2 Pile driving, well foundation -caission foundation	
15 th Week: (19 th Dec-22nd Dec)	1st	3.3 Coffer dams	
		4. BRIDGE SUBSTRUCTURE & APPROACHES	
	2nd	4.1 Types of piers	
EXTRA CLASSES REQUIRED		4.2 Types of abutments	
		4.3 Types of abutments	
		4.3 Types of wing walls	
		4.4 Approaches	
		5. CULVERT & CAUSE WAYS :	
		5.1 Types of culverts - brief description	
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		5.2 Types of causeways - brief description	
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Laxmipriya Swain

Signature of Faculty