

Department: Civil Engineering	Semester : 5th sec A	Name of the Teaching faculty: LAXMIPRIYA SWAIN	
Subject :- Th3. RAILWAY & BRIDGE ENGG.	No.of Days/ week class allotted : 04/week	Semester from date: 01/08/2022 to 30/11/2023 No. of Weeks :18 Topics to be covered:-	
		Section – A: RAILWAYS	
Week	Class Day	Topics	Remarks
		Introduction (2P)	
1 st Week	DAY 1	1.1 Railway terminology	
	DAY 2	1.2 Advantages of railways 1.3 Classification of Indian Railways	
		Permanent way (5P)	
	DAY 3	2.1 Definition and components of a permanent way	
	DAY 4	2.1 Definition and components of a permanent way	
2 nd Week	DAY 1	2.2 Concept of gauge, different gauges prevalent in India, suitability of these gauges under different condition	
	DAY 2	2.2 Concept of gauge, different gauges prevalent in India, suitability of these gauges under different condition	
	DAY 3	2.2 Concept of gauge, different gauges prevalent in India, suitability of these gauges under different condition	
	DAY 4	3.1 Rails	
		Track materials (10P)	
3 rd Week	DAY 2	3.1 Rails 3.1.1 Functions and requirement of rails	
	DAY 3	3.1 Rails 3.1.1 Functions and requirement of rails	
	DAY 4	3.1.2 Types of rail sections, length of rails 3.1.3 Rail joints – types, requirement of an ideal joint	
4th week	DAY 1	3.1.2 Types of rail sections, length of rails 3.1.3 Rail joints – types, requirement of an ideal joint	
	DAY 2	3.1.4 Purpose of welding of rails & its advantages 3.1.5 Creep- definition, cause & prevention	
	DAY 3	3.2 Sleepers 3.2.1 Definition, function & requirements of sleepers 3.2.2 Classification of sleepers	
	DAY 4	3.2.3 Advantages & disadvantages of different types of sleepers 3.3 Ballast 3.3.1 Functions & requirements of ballast	
5 th Week	DAY 1	3.3.2 Materials for ballast 3.4 Fixtures for Broad gauge	

5 th Week	DAY 3	3.3.2 Materials for ballast 3.4 Fixtures for Broad gauge	
		Geometric for broad gauge	
	DAY 4	4.1 Typical cross – sections of single & double broad gauge railway track in cutting and embankment	
6 th Week	DAY 1	4.1 Typical cross – sections of single & double broad gauge railway track in cutting and embankment	
	DAY 3	4.2 Permanent & temporary land width	
	DAY 4	4.2 Permanent & temporary land width	
7 th Week:	DAY 1	4.3 Gradients for drainage	
	DAY 2	4.3 Gradients for drainage	
	DAY 3	4.3 Gradients for drainage	
	DAY 4	4.4 Super elevation – necessity & limiting valued	
8 th Week:	DAY 3	4.4 Super elevation – necessity & limiting valued	
	DAY 4	4.4 Super elevation – necessity & limiting valued	
		Points and crossings(4P)	
9 th Week	DAY 1	5.1 Definition, necessity of Points and crossings	
	DAY 2	5.1 Definition, necessity of Points and crossings	
	DAY 3	5.2 Types of points & crossings with tie diagrams	
	DAY 4	5.2 Types of points & crossings with tie diagrams	
		Laying & maintenance of track (4P)	
10 th Week	DAY 1	6.1 Methods of Laying & maintenance of track 6.2 Duties of a permanent way inspector	
	DAY 2	6.1 Methods of Laying & maintenance of track	
	DAY 3	6.2 Duties of a permanent way inspector	
	DAY 4	6.2 Duties of a permanent way inspector	
		Introduction to bridges (2P)	
11 th Week	DAY 1	1.1 Definitions 1.2 Components of a bridge	
	DAY 2	1.3 Classification of bridges 1.4 Requirements of an ideal bridge	
		Bridge site investigation, hydrology & planning (5P)	
	DAY 3	2.1 Selection of bridge site, Alignment,	
	DAY 4	2.2 Determination of Flood Discharge	
12 th Week	DAY 1	2.3 Waterway & economic span	
	DAY 2	2.4 Afflux, clearance & free board	



12 th Week	DAY 3	2.4 Afflux, clearance & free board	
13 th Week		<b>PUJA HOLIDAYS</b>	
14 th Week		<b>Bridge foundation 8p</b>	
	DAY 1	3.1 Scour depth minimum depth of foundation	
	DAY 2	3.1 Scour depth minimum depth of foundation	
	DAY 3	3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caission foundation	
15 th Week	DAY 4	3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caission foundation	
	DAY 1	3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caission foundation	
	DAY 2	3.2 Types of bridge foundations – spread	
	DAY 3	3.3 Coffor dams	
16th Week	DAY 4	3.3 Coffor dams	
	DAY 1	<b>Bridge site investigation, hydrology &amp; planning(5P)</b>	
		4.1 Types of piers	
	DAY 2	4.2 Types of abutments	
17th Week	DAY 3	4.2 Types of abutments	
	DAY 4	4.3 Types of wing walls	
	DAY 1	4.4 Approaches	
		<b>Culvert &amp; Cause ways (5P)</b>	
18th Week	DAY 2	5.1 Types of culvers – brief description	
	DAY 3	5.1 Types of culvers – brief description	
	DAY 4	5.1 Types of culvers – brief description	
	DAY 1	5.2 Types of causeways – brief description	
	DAY 2	5.2 Types of causeways – brief description	
	DAY 3	5.2 Types of causeways – brief description	

Raxmi Priya Swain  
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