



Lesson plan of Railway & Bridge Engineering of 5th sem 22-23

Period	Unit	Topic	
1.	Introduction	Railway terminology	
2.		Advantages of railways	
3.		Classification of Indian Railways	
4.	Permanent way	definition and components of a permanent way	
		Concept of gauge, different gauges prevalent in India, suitability of these gauges under different conditions	
5.	Track materials	Rails.	
		Functions and requirement of rails	
		Types of rail sections, length of rails	
6.		Rail joints – types, requirement of an ideal joint.	
		Purpose of welding of rails & its advantages.	
7.		Creep- definition, cause & prevention	
8.		Sleepers	
		Definition, function & requirements of sleepers.	
9.		Classification of sleepers.	
		Advantages & disadvantages of different types of sleepers.	
10.		Ballast	
		Functions & requirements of ballast	
11.		Materials for ballast	
		Fixtures for Broad gauge	
12.		Connection of rails to rail-fishplate, fish bolts	
13.		Connection of rails to sleepers	
14.		Geometric for broad gauge	Typical cross – sections of single & double broad gauge railway track in cutting and embankment
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17.	Permanent & temporary land width.		
18.			
19.	Gradients for drainage.		
20.			
21.	Super elevation – necessity & limiting valued.		
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23.			
24.	Points and crossings	Definition, necessity of Points and crossings.	
25.			
26.		Types of points & crossings with tie diagrams.	
27.			
28.	Laying & maintenance of track	Methods of Laying & maintenance of track	
29.			
30.		Duties of a permanent way inspector	
31.			
32.	BRIDGES Introduction to bridges	Definitions	
		Components of a bridge	
33.		Classification of bridges	
		Requirements of an ideal bridge	

34.	Bridge site investigation, hydrology & planning	Selection of bridge site, Alignment
35.		Determination of Flood Discharge
36.		Waterway & economic span
37.		Afflux, clearance & free board
38.		.
39.	Bridge foundation	Scour depth minimum depth of foundation.
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41.		Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caisson foundation
42.		
43.		
44.		
45.		Coffer dams
46.		
47.	Bridge substructure and approaches	Types of piers
48.		Types of abutments
49.		Types of wing walls
50.		Approaches
51.	Culvert & Cause ways	Types of culverts
52.		Types of causeways
53.		
54.	Revision	Revision classes
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