

Badriprasad Institute of Technology, Sambalpur

Lesson plan for Theory -3, Railway & Bridge Engineering

Semester & Branch : 5th Sem Civil Engineering

Total Periods-60

Name of the faculty : Mr. Firoz Kumar Patel

No of periods /week-4

WEEK	CLASS DAY	THEORY TOPICS
Section – A: RAILWAYS		
1st	1st	Introduction Railway terminology
	2nd	Advantages of railways
	3rd	Classification of Indian Railways
	4th	Permanent way Definition and components of a permanent way
2nd	1st	Concept of gauge, different gauges prevalent in India, suitability of these gauges under different conditions
	2nd	Continue of 1st Class
	3rd	Track materials Rails
	4th	Functions and requirement of rails
3rd	1st	Types of rail sections, length of rails
	2nd	Rail joints – types, requirement of an ideal joint
	3rd	Continue of 2nd Class
	4th	Purpose of welding of rails & its advantages
4th	1st	Creep- definition, cause & prevention
	2nd	Sleepers:- Definition, function & requirements of sleepers
	3rd	Classification of sleepers
	4th	Advantages & disadvantages of different types of sleepers
5th	1st	Continue of 1st Class
	2nd	Continue of 2nd Class
	3rd	Ballast:- Functions & requirements of ballast
	4th	Materials for ballast
6th	1st	Fixtures for Broad gauge
	2nd	Connection of rails to rail-fishplate, fish bolts
	3rd	Connection of rails to sleepers
	4th	Geometric for broad gauge Typical cross – sections of single & double broad gauge railway track in cutting and embankment
7th	1st	Continue of 4th Class
	2nd	Permanent & temporary land width
	3rd	Gradients for drainage
	4th	Super elevation – necessity & limiting valued
8th	1st	Points and crossings Definition, necessity of Points and crossings
	2nd	Continue of 1st Class
	3rd	Types of points & crossings with tie diagrams
	4th	Continue of 3rd Class

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9th	1st	Laying & maintenance of track
		Methods of Laying & maintenance of track
	2nd	Continue of 1st Class
	3rd	Duties of a permanent way inspector
	Section – B: BRIDGES	
	4th	Introduction to bridges
		Definitions
Components of a bridge		
10th	1st	Classification of bridges
	2nd	Requirements of an ideal bridge
	3rd	Continue of 2nd Class
	4th	Bridge site investigation, hydrology & planning
Selection of bridge site, Alignment,		
11th	1st	Determination of Flood Discharge
	2nd	Continue of 1st Class
	3rd	Waterway & economic span
	4th	Afflux, clearance & free board
12th	1st	Bridge foundation
		Scour depth minimum depth of foundation
	2nd	Types of bridge foundations – spread foundation, pile foundation
	3rd	well foundation – sinking of wells, caission foundation
4th	Coffer dams	
13th	1st	Bridge substructure and approaches
		Types of piers
	2nd	Continue of 1st Class
	3rd	Types of abutments,
4th	Types of wing walls,Approaches	
14th	1st	Culvert & Cause ways
		Types of culverts – brief description
	2nd	Continue of 1st Class
	3rd	Continue of 2nd Class
4th	Types of causeways – brief description	
15th	1st	Continue of 4th Class
	2nd	Continue of 1st Class
	3rd	Rivision Class
	4th	Rivision Class

Sign of Faculty

Sign of HOD