

Discipline: Civil	Semester: 5th	Semester from: 15/07/21-19/01/22 No. of weeks:28
Subject: RAILWAY & BRIDGE ENGINEERING Th.3	No. of days/per week Class Allotted: 4	Name of the teaching faculty: Sushree Sasmita Sahoo
Week	Class/Day	Theory Topics
1 <sup>st</sup>	1 <sup>st</sup>	Introduction, Railway terminology
	2 <sup>nd</sup>	Introduction, Railway terminology
	3 <sup>rd</sup>	Advantages of railways
	4 <sup>th</sup>	Classification of Indian Railways
2 <sup>nd</sup>	1 <sup>st</sup>	Permanent way
	2 <sup>nd</sup>	Definition and components of a permanent way
	3 <sup>rd</sup>	Definition and components of a permanent way
	4 <sup>th</sup>	Concept of gauge, different gauges prevalent in India
3 <sup>rd</sup>	1 <sup>st</sup>	Concept of gauge, different gauges prevalent in India
	2 <sup>nd</sup>	suitability of these gauges under different conditions
	3 <sup>rd</sup>	suitability of these gauges under different conditions
	4 <sup>th</sup>	Track materials, Rails, Functions and requirement of rails
4 <sup>th</sup>	1 <sup>st</sup>	Types of rail sections, length of rails

	2 <sup>nd</sup>	Rail joints – types, requirement of an ideal joint
	3 <sup>rd</sup>	Purpose of welding of rails & its advantages
	4 <sup>th</sup>	Creep- definition, cause & prevention
5 <sup>th</sup>	1 <sup>st</sup>	Definition, function & requirements of sleepers
	2 <sup>nd</sup>	Classification of sleepers, Advantages & disadvantages of different types of sleepers
	3 <sup>rd</sup>	Ballast, Functions & requirements of ballast
	4 <sup>th</sup>	Materials for ballast, Fixtures for Broad gauge
6 <sup>th</sup>	1 <sup>st</sup>	Connection of rails to rail-fishplate, fish bolts
	2 <sup>nd</sup>	Connection of rails to sleepers
	3 <sup>rd</sup>	Geometric for broad gauge
	4 <sup>th</sup>	Typical cross – sections of single & double broad gauge railway track in cutting and embankment
7 <sup>th</sup>	1 <sup>st</sup>	Typical cross – sections of single & double broad gauge railway track in cutting and embankment
	2 <sup>nd</sup>	Permanent & temporary land width
	3 <sup>rd</sup>	Permanent & temporary land width

	4 <sup>th</sup>	Gradients for drainage
8 <sup>th</sup>	1 <sup>st</sup>	Super elevation – necessity & limiting valued
	2 <sup>nd</sup>	Super elevation – necessity & limiting valued
	3 <sup>rd</sup>	Numerical Problems
	4 <sup>th</sup>	Numerical Problems
9 <sup>th</sup>	1 <sup>st</sup>	Points and crossings
	2 <sup>nd</sup>	Definition, necessity of Points and crossings
	3 <sup>rd</sup>	Definition, necessity of Points and crossings
	4 <sup>th</sup>	Types of points & crossings with tie diagrams
10 <sup>th</sup>	1 <sup>st</sup>	Types of points & crossings with tie diagrams
	2 <sup>nd</sup>	Types of points & crossings with tie diagrams
	3 <sup>rd</sup>	Laying & maintenance of track
	4 <sup>th</sup>	Methods of Laying & maintenance of track
11 <sup>th</sup>	1 <sup>st</sup>	Methods of Laying & maintenance of track
	2 <sup>nd</sup>	Duties of a permanent way inspector
	3 <sup>rd</sup>	Duties of a permanent way inspector
	4 <sup>th</sup>	Introduction to bridges Definitions

12 <sup>th</sup>	1 <sup>st</sup>	Components of a bridge
	2 <sup>nd</sup>	Components of a bridge
	3 <sup>rd</sup>	Classification of bridges, Requirements of an ideal bridge
	4 <sup>th</sup>	Bridge site investigation, hydrology & planning
13 <sup>th</sup>	1 <sup>st</sup>	Selection of bridge site, Alignment
	2 <sup>nd</sup>	Selection of bridge site, Alignment
	3 <sup>rd</sup>	Determination of Flood Discharge
	4 <sup>th</sup>	Waterway & economic span
14 <sup>th</sup>	1 <sup>st</sup>	Afflux, clearance & free board
	2 <sup>nd</sup>	Bridge foundation
	3 <sup>rd</sup>	Scour depth, minimum depth of foundation
	4 <sup>th</sup>	Scour depth, minimum depth of foundation
15 <sup>th</sup>	1 <sup>st</sup>	Types of bridge foundations – spread foundation
	2 <sup>nd</sup>	pile foundation
	3 <sup>rd</sup>	well foundation
	4 <sup>th</sup>	caisson foundation
16 <sup>th</sup>	1 <sup>st</sup>	Coffer dams
	2 <sup>nd</sup>	Bridge substructure and approaches
	3 <sup>rd</sup>	Types of piers

	4 <sup>th</sup>	Types of abutments
17 <sup>th</sup>	1 <sup>st</sup>	Types of wing walls
	2 <sup>nd</sup>	Culvert & Cause ways
	3 <sup>rd</sup>	Types of culvers – brief description
	4 <sup>th</sup>	Types of causeways – brief description