

## **GANDHI SCHOOL OF ENGINEERING**

## BHABANDHA, BERHAMPUR

BRANCH- CIVIL ENGINEERING

SEMESTER- 5TH

SUBJECT- Th3. RAILWAY & BRIDGE ENGINEERING

NAME OF THE FACULTY- ER.SRIDHRA SAHU & ER.ROJALIN MISHRA

			Topic to be taken			Actual topic taken				
SI. No	Topic/ Module	No. of period	Details of the topics	Date	Topic No.	Topic Name	Date	Remarks		
	Section – A: RAILWAYS									
1	Introduction	2	1.1 Railway terminology 1.2 Advantages of railways 1.3 Classification of Indian Railways	01.08.2023- 04.08.2023	1.2		01.08.2023 04.08.2023			
2	Permanent way	5	2.1 Definition and components of a permanent way 2.2 Concept of gauge, different gauges prevalent in India, suitability of these gauges under different conditions	05.08.2023- 12.08.2023	2.2	way Concept of gauge, different gauges prevalent in India, suitability of these gauges under	05.08.2023 18.08.2023 19.08.2023 25.08.2023 26.08.2023			

3	Track materials	10	3.1 Rails 3.1.1 Functions and requirement of rails 3.1.2 Types of rail sections, length of rails 3.1.3 Rail joints – types, requirement of an ideal joint 3.1.4 Purpose of welding of rails & its advantages 3.1.5 Creep- definition, cause & prevention 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 3.3.1 Functions & requirements of ballast 3.3.2 Materials for ballast 3.4 Fixtures for Broad gauge 3.4.1 Connection of rails to rail-fishplate, fish holts	14.08.2023- 01.09.2023	3.1.1 3.1.2 3.1.3 3.1.4 3.1.5 3.2 3.2.1 3.2.2 3.2.3 3.3.1 3.3.2 3.4 3.4.1	Functions and requirement of rails Types of rail sections, length of rails Rail joints – types, requirement of an ideal joint Purpose of welding of rails & its advantages Creep- definition, cause & prevention Sleepers Definition, function & requirements of sleepers Classification of sleepers Advantages & disadvantages of different types of sleepers Ballast Functions & requirements of ballast Materials for ballast	01.09.2023 02.09.2023 08.09.2023 22.09.2023	
4	Geometric for broad gauge	10		02.09.2023- 23.09.2023	4.1	Connection of rails to sleepers  Typical cross – sections of single & double broad gauge railway track in cutting and embankment  Permanent & temporary land width	23.09.2023 29.09.2023 30.09.2023 06.10.2023 07.10.2023 13.10.2023 03.11.2023 04.11.2023 10.11.2023 11.11.2023	

5	Points and crossings	4	5.1 Definition, necessity of Points and crossings 5.2 Types of points & crossings with tie diagrams	25.09.2023- 30.09.2023	5.1	Definition, necessity of Points and crossings  Types of points & crossings with tie diagrams	17.11.2023 18.11.2023 24.11.2023 25.11.2023
6	Laying & maintenance of track	4	6.1 Methods of Laying & maintenance of track 6.2 Duties of a permanent way inspector	03.10.2023- 09.10.2023	6.1	Methods of Laying & maintenance of track  Duties of a permanent way inspector	01.12.2023 02.12.2023 08.12.2023 09.12.2023
			Sectio	n – B: BRIDGE	S		
2	Introduction to bridges  Bridge site investigation, hydrology & planning	2	1.1 Definitions 1.2 Components of a bridge 1.3 Classification of bridges 1.4 Requirements of an ideal bridge 2.1 Selection of bridge site, Alignment, 2.2 Determination of Flood Discharge 2.3 Waterway & economic span 2.4 Afflux, clearance & free board	10.10.2023- 13.10.2023 16.10.2023- 04.11.2023	1.1 1.2 1.3 1.4 2.1 2.2 2.3 2.4	Definitions Components of a bridge Classification of bridges Requirements of an ideal bridge Selection of bridge site, Alignment, Determination of Flood Discharge Waterway & economic span Afflux, clearance & free board	07.08.2023 08.08.2023 14.08.2023 21.08.2023 22.08.2023 28.08.2023 29.08.2023
3	Bridge foundation	8	3.1 Scour depth minimum depth of foundation 3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caission foundation 3.3 Coffer dams	06.11.2023- 21.11.2023	3.1 3.2 3.3	Scour depth minimum depth of foundation Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caission foundation Coffer dams	04.09.2023 11.09.2023 12.09.2023 25.09.2023 26.09.2023 03.10.2023 09.10.2023 10.10.2023

4	Bridge substructure and approaches	5	4.1 Types of piers 4.2 Types of abutments 4.3 Types of wing walls 4.4 Approaches	24.11.2023- 02.12.2023	4.1 4.2 4.3 4.4	Types of piers Types of abutments Types of wing walls Approaches	16.10.2023 17.10.2023 31.10.2023 06.11.2023 07.11.2023	
5	Culvert & Cause Ways	5	5.1 Types of culvers – brief description 5.2 Types of causeways – brief description	04.12.2023- 12.12.2023	5.1 5.2	Types of culvers – brief description  Types of causeways – brief description	20.11.2023 21.11.2023 28.11.2023 04.12.2023	



Signature & Stamp of HOD