

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF CIVIL ENGINEERING
LESSON PLAN



LESSON PLAN

SUBJECT: RAILWAY & BRIDGE ENGINEERING (TH 3)

FACULTY: SRI KSHITISH KUMAR SAHOO

ACCADEMIC SESSION: 2024-25

SEMESTER: 5TH

SEC: B

HOD / Sr. Lecturer (Civil Engg.)

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Discipline: Civil Engineering	Semester/ Section: 5 th / B		Name of the teaching faculty: SRI KSHITISH KUMAR SAHOO
Subject: Th3.Railway & Bridge Engineering	No. of Days/ per week class allotted: 04 period per week. (Tue, Thu, Fri, Sat)		Semester From Date: 01-07-2024 To Date: 08-11-2024 No. of weeks: 18
Week	Class Day	No of period available	Topics to be covered
1ST	02.07.2024	1	1 Introduction 1.1 Railway terminology.
	04.07.2024	1	1.2 Advantages of railways.
	05.07.2024	1	1.3 Classification of Indian Railways.
	06.07.2024	1	2 Permanent way 2.1 Definition and components of a permanent way.
2ND	09.07.2024	1	2.2 Concept of gauge, different gauges prevalent in India.
	11.07.2024	1	2.2 suitability of these gauges under different conditions.
	12.07.2024	1	2.2 suitability of these gauges under different conditions.
	13.07.2024	1	3 Track materials 3.1 Rails 3.1.1 Functions and requirement of rails
3RD	16.07.2024	1	3.1.2 Types of rail sections, length of rails.
	18.07.2024	1	3.1.3 Rail joints – types, requirement of an ideal joint.
	19.07.2024	1	3.1.4 Purpose of welding of rails & its advantages.
	20.07.2024	1	3.1.5 Creep- definition, cause & prevention.
4TH	23.07.2024	1	3.1.5 creep theories.
	25.07.2024	1	3.1.5 creep theories.
	26.07.2024	1	3.2 Sleepers 3.2.1 Definition, function & requirements of sleepers
	27.07.2024	1	3.2.2 Classification of sleepers
5TH	30.07.2024	1	3.2.3 Advantages & disadvantages of different types of sleepers.
	01.08.2024	1	3.3 Ballast 3.3.1 Functions & requirements of ballast.
	02.08.2024	1	3.3.2 Materials for ballast.
	03.08.2024	1	3.4 Fixtures for Broad gauge 3.4.1 Connection of rails to rail-fishplate, fish bolts.
6TH	06.08.2024	1	3.4.2 Connection of rails to sleepers.
	08.08.2024	1	1 Introduction to bridges 1.1 Definitions.
	09.08.2024	1	1.2 Components of a bridge.
	10.08.2024	1	1.3 Classification of bridges.

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7TH	13.08.2024	1	1.4 Requirements of an ideal bridge.
	16.08.2024	1	2 Bridge site investigation, hydrology & planning 2.1 Selection of bridge site, Alignment.
	17.08.2024	1	2.2 Determination of Flood Discharge.
8TH	20.08.2024	1	2.3 Waterway & economic span.
	22.08.2024	1	2.4 Afflux, clearance & free board.
	23.08.2024	1	4 Geometric for broad gauge: 4.1 Typical cross – sections of single & double broad gauge railway track in cutting and embankment.
	24.08.2024	1	4.1 Typical cross – sections of single & double broad gauge railway track in cutting and embankment.
9TH	27.08.2024	1	4.1 Typical cross – sections of single & double broad gauge railway track in cutting and embankment.
	29.08.2024	1	4.2 Permanent & temporary land width.
	30.08.2024	1	4.3 Gradients for drainage.
	31.08.2024	1	4.4 Super elevation – necessity & limiting valued.
10TH	03.09.2024	1	Problem solving chapter 4
	05.09.2024	1	Problem solving chapter 4
	06.09.2024	1	Problem solving chapter 4
11TH	10.09.2024	1	5 Points and crossings 5.1 Definition, necessity of Points and crossings.
	12.09.2024	1	IA
	13.09.2024	1	5.1 Definition, necessity of Points and crossings.
	14.09.2024	1	5.2 Types of points & crossings with tie diagrams.
12TH	17.09.2024	1	5.2 Types of points & crossings with tie diagrams.
	19.09.2024	1	5.2 Types of points & crossings with tie diagrams.
	20.09.2024	1	6 Laying & maintenance of track 6.1 Methods of Laying & maintenance of track.
	21.09.2024	1	6.1 Methods of Laying & maintenance of track.
13TH	24.09.2024	1	6.2 Duties of a permanent way inspector.
	26.09.2024	1	6.2 Duties of a permanent way inspector.
	27.09.2024	1	3 Bridge foundation 3.1 Scour depth minimum depth of foundation.
	28.09.2024	1	3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caisson foundation.

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14TH	01.10.2024	1	3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caisson foundation.
	03.10.2024	1	3.3 Cofferdams.
	04.10.2024	1	3.3 Cofferdams.
	05.10.2024	1	4 Bridge substructure and approaches 4.1 Types of piers
15TH	15.10.2024	1	4.2 Types of abutments
	17.10.2024	1	4.2 Types of abutments
	18.10.2024	1	4.3 Types of wing walls
	19.10.2024	1	4.3 Types of wing walls
16TH	22.10.2024	1	4.4 Approaches
	24.10.2024	1	4.4 Approaches
	25.10.2024	1	5 Culvert & Cause ways: 5.1 Types of culvers – brief description
	26.10.2024	1	5.1 Types of culvers – brief description, 5.2 Types of causeways – brief description
17TH	29.10.2024	1	5.2 Types of causeways – brief description
	01.11.2024	1	Revision.
	02.11.2024	1	Revision.
18TH	05.11.2024	1	Previous year questions discussion.
	07.11.2024	1	Previous year questions discussion.
	08.11.2024	1	Previous year questions discussion.