

## DEPARTMENT OF CIVIL ENGINEERING

## LESSON PLAN

SUBJECT NAME- RAILWAY AND BRIDGE ENGINEERING (TH-3)

TOTAL NO. OF WEEK-15

CLASSES ALLOTTED PER WEEK-4

SEMESTER-5TH

TOTAL PERIOD- 60

WINTER SESSION-(2020-2021)

NAME OF TEACHING FACULTY – **RASHMI REKHA RAY**

Week Dates	No. Of periods available	No. Of periods taken	Topics to be covered	Topics covered	Shortfall if any	Reasons	Date of makeup of shortfalls	Initial of faculty
1 <sup>st</sup> 01/09 to 05/09	4	1	<b>Section – A: RAILWAYS</b> <b>1.Introduction: 1.1.</b> Railway terminology, <b>1.2.</b> Advantages of railways , <b>1.3.</b> Classification of Indian Railways <b>2.Permanent way:</b> <b>2.1.</b> Definition and components of a permanent way	Syllabus discussion A.Ch-01 (1.1, 1.2)	2.1	Due to lack of class	12/09/20	
2 <sup>nd</sup> 07/09 To 12/09	4	4	<b>2.2.</b> Concept of gauge, different gauges prevalent in India, suitability of these gauges under different conditions <b>3.Track materials : 3.1. Rails</b> <b>3.1.1.</b> Functions and requirement of rail	A.Ch-01 (1.3), A.Ch-02 (2.1, 2.2) A.Ch-03 (3.1.1)	No			
3 <sup>rd</sup> 14/09 to 19/09	3	3	<b>3.1.2.</b> Types of rail sections, length of rails <b>3.1.3.</b> Rail joints – types, requirement of an ideal joint <b>3.1.4.</b> Purpose of welding of rails & its advantages	A.Ch-03 (3.1.2, 3.1.3, 3.1.4)	No			

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4 <sup>th</sup> 21/09 to 26/09	4	4	<b>3.1.5.</b> Creep- definition, cause & prevention <b>3.2.Sleepers:</b> <b>3.2.1.</b> Definition, function & requirements of sleepers <b>3.2.2.</b> Classification of sleepers <b>3.2.3.</b> Advantages & disadvantages of different types of sleepers	3.1.5, 3.2.1, 3.2.2, 3.2.3 Class test	No			
5 <sup>th</sup> 28/09 to 03/10	3	3	<b>3.3 Ballast: 3.3.1</b> Functions & requirements of ballast <b>3.3.2</b> Materials for ballast <b>3.4.Fixtures for Broad gauge</b> <b>3.4.1.</b> Connection of rails to rail-fishplate, fish bolts <b>3.4.2.</b> Connection of rails to sleepers.	3.3 (3.3.1 & 3.3.2) 3.4 (3.4.1 & 3.4.2) Class test	No			
7 <sup>th</sup> 12/10 to 17/10	4	4	<b>Section-B:BRIDGES 1.</b> <b>Introduction to bridges:</b> <b>1.1.</b> Definitions <b>1.2.</b> Components of a bridge <b>1.3.</b> Classification of bridges <b>1.4.</b> Requirements of an ideal bridge <b>3. Bridge foundation:</b> <b>3.1</b> Scour depth minimum depth of foundation	B.Ch- 01 (1.1, 1.2, 1.3, 1.4) Ch-03 (3.1) Doubt Cleared	No			
8 <sup>th</sup> 19/10 to 24/10	3	4	<b>3.2</b> Types of bridge foundations – spread foundation, pile foundation <b>3.2</b> well foundation – sinking of wells, caisson foundation <b>3.3</b> Cofferdam	3.2,3.3	No			
9 <sup>th</sup> 26/10 to 31/10	2	2	<b>4A. Geometric for broad gauge:</b> <b>4.1.</b> Typical c/s of single & double broad gauge railway track in cutting and embankment	A.Ch-04 (4.1) Mcq Discussion	No			
10 <sup>th</sup> 02/11 to 07/11	4	4	<b>4.2.</b> Permanent & temporary land width <b>4.3.</b> Gradients for drainage	Mcq discussion 4.2, 4.3	No			

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11 <sup>th</sup> 09/11 to 14/11	4	4	<b>4.4.</b> Super elevation-necessity & limiting value	4.4 and related problems	No			
12 <sup>th</sup> 16/11 to 21/11	4	4	<b>5A. Points and crossings</b> <b>5.1.</b> Definition, necessity of Points and crossings <b>5.2.</b> Types of points & crossings with tie diagram	A.Ch-05 (5.1, 5.2) Related Mcq discussion	No			
13 <sup>th</sup> 23/11 to 28/11	4	4	<b>4B. Bridge substructure and approaches:</b> <b>4.1</b> Types of piers <b>4.2</b> Types of abutments <b>4.3</b> Types of wing walls <b>4.4</b> Approaches	B. Ch-04 (4.1, 4.2, 4.3, 4.4)	No			
14 <sup>th</sup> 30/11 to 05/12	3	4	<b>5B. Culvert &amp; Cause ways</b> <b>5.1</b> Types of culvers – brief description <b>5.2</b> Types of causeways – brief description	B. Ch-05 (5.1, 5.2) Class test	No			
15 <sup>th</sup> 07/12 to 12/12	4	4	<b>6A. Laying &amp; maintenance of track:</b> <b>6.1</b> Methods of Laying & maintenance of track <b>6.2</b> Duties of a permanent way inspector	A. Ch-06 (6.1, 6.2) Class test	No			
16 <sup>th</sup> 14/12 to 19/12		2	Revision of Railway part	Revision and doubt cleared				
17 <sup>th</sup> 21/12 to 26/12		2	Revision of Bridge part	Revision and doubt cleared				
18 <sup>th</sup> 28/12 to 31/12		3	Previous year questions and answers discussion.	Discussion of previous year questions				

Section – A: RAILWAYS Section – B: BRIDGES