

Govt. Polytechnic, Sambalpur (Rengali)

Department of Civil Engineering

Name of the Faculty: Mr. Niranjana Jena (PTGF, civil)

LESSON PLAN FOR RAILWAY & BRIDGE ENGINEERING FOR 5TH SEM, CIVIL ENGG, WINTER -2022 W.E.F.

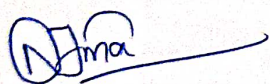
15.09.2022

WEEK NO.	DATE	TOPIC	PERIODS ASSIGNED PER TOPIC	PERIODS AVAILABL E PER WEEK
W-1	15.09.22 TO 17.09.22	<b>Section – A: RAILWAYS</b>  <b>1. Introduction</b> 1.1 Railway terminology 1.2 Advantages of railways 1.3 Classification of Indian Railways	2	3
		<b>2. Permanent way</b> 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	5	1
W-2	19.09.22 TO 23.09.22			4
W-3	26.09.22 TO 01.10.22	<b>3. Track materials</b> 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 bolts	10	4
W-4	10.10.22 TO 15.10.22			4
W-5	17.10.22 TO 22.10.22			2
		<b>4. Geometric for broad gauge</b> 4.1 Typical cross – sections of single & double broad gauge railway track in cutting and embankment 4.2 Permanent & temporary land width 4.3 Gradients for drainage 4.4 Super elevation – necessity & limiting values		2
W-6	25.10.22 TO 29.10.22		10	4
W-7	31.10.22 TO 05.11.22			4
W-8	07.11.22 TO 12.11.22	<b>5. Points and crossings</b> 5.1 Definition, necessity of Points and crossings 5.2 Types of points & crossings with tie diagrams	4	4



W-9	14.11.22 TO 19.11.22	6. Laying & maintenance of track 6.1 Methods of Laying & maintenance of track 6.2 Duties of a permanent way inspector	4	4
W-10	21.11.22 TO 26.11.22	<b>Section – B: BRIDGES</b> <b>1. Introduction to bridges</b> 1.1 Definitions 1.2 Components of a bridge 1.3 Classification of bridges 1.4 Requirements of an ideal bridge	2	2
W-11	28.11.22 TO 03.12.22	<b>2. Bridge site investigation, hydrology &amp; planning</b> 2.1 Selection of bridge site, Alignment, 2.2 Determination of Flood Discharge 2.3 Waterway & economic span 2.4 Afflux, clearance & free board	5	2
W-12	05.12.22 TO 10.12.22	<b>3. Bridge foundation</b> 3.1 Scour depth minimum depth of foundation 3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells, caisson foundation 3.3 Cofferdams	8	3
W-13	12.12.22 TO 17.12.22	<b>4. Bridge substructure and approaches</b> 4.1 Types of piers 4.2 Types of abutments 4.3 Types of wing walls	5	1+3 EXTRA CLASS
W-14	19.12.22 TO 22.12.22 & Onwards	<b>5. Culvert &amp; Cause ways</b> 5.1 Types of culvers – brief description 5.2 Types of causeways – brief description	5	4 + 1 EXTRA CLASS
		REVISION	–	–

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Signature of faculty  
Date: 28/09/2022



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Date: 14/09/2022