LESSON PLAN

Discipline: Civil Engg. ,UGMIT Rayagada
Semester: 5TH
Subject: RAILWAY & BRIDGE ENGINEERING (Th-3)
No of Days/week class allotted: 04
Session: 2022W

Week	Class Day	Theory	Remarks
1	1-4	**1 Introduction** 1.1 Railway terminology 1.2 Advantages of railways 1.3 Classification of Indian Railways **2 Permanent way** 2.1 Definition and components of a permanent way	
2	5-8	2.2 Concept of gauge, different gauges prevalent in India, suitability of these gauges under different conditions **3 Track materials** 3.1 Rails 3.1.1 Functions and requirement of rails 3.1.2 Types of rail sections, length of rails	
3	9-12	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	
4	13-16	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	
5	17-20	3.4.2 Connection of rails to sleepers **4 Geometric for broad gauge** 4.1Typical cross – sections of single & double broad gauge railway track in cutting and embankment	
6	21-24	4.2 Permanent & temporary land width 4.3 Gradients for drainage	
7	25-28	4.4 Super elevation – necessity & limiting valued **5 Points and crossings** 5.1 Definition,	
8	29-32	necessity of Points and crossings 5.2 Types of points & crossings with tie diagrams **6 Laying & maintenance of track** 6.1 Methods of Laying	
9	33-36	maintenance of track	

		6.2 Duties of a permanent way inspector **Section – B: BRIDGES** **1 Introduction to bridges** 1.1 Definitions 1.2 Components of a bridge	
10	37-40	1.3 Classification of bridges 1.4 Requirements of an ideal bridge **2 Bridge site investigation, hydrology & planning** 2.1 Selection of bridge site, Alignment, 2.2 Determination of Flood Discharge	
11	41-44	2.3 Waterway & economic span 2.4 Afflux, clearance & free board **3 Bridge foundation** 3.1 Scour depth minimum depth of foundation	
12	45-48	3.2 Types of bridge foundations – spread foundation, pile foundation- well foundation – sinking of wells,	
13	49-52	caission foundation , 3.3 Coffer dams **4 Bridge substructure and approaches** 4.1 Types of piers 4.2 Types of abutments	
14	53-56	4.3 Types of wing walls 4.4 Approaches **Culvert & Cause ways** 5.1 Types of culvers	
15	57-60	brief description 5.2 Types of causeways – brief description	

Signature of Faculty: Subhasmita Patro
D-15.09.22 ~~D-22~~

Signature of HOD: Manas Ranjan Pradhan
15/9/22