Theory-03

LESSON PLAN

Discipline: Civil Engg. ,UGMIT Rayagada
Semester: ~~6TH~~ 5th
Name of the Teaching Faculty:
Subject: **RAILWAY & BRIDGE ENGINEERING (CET-603)**
No of Days/week class allotted: 04
Session: 2019-20

Week	Class Day	Theory/Practical Topics	Remarks
1	1-4	**Section – A: RAILWAYS** **1.0 Introduction :** 1.1Railway terminology 1.2Advantages of railways 1.3Classification of Indian Railways **2.0 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	9-12	**3.0 Track materials** 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	
4	13-16	3.4 Fixtures for Broad gauge 3.4.1 Connection of rails to rail-fishplate, fish bolts 3.4.2 Connection of rails to sleepers **4.0 Geometric for Broad gauge** 4.1 Typical cross – sections of single & double broad gauge railway track in cutting and embankment	
5	17-20	4.2 Permanent & temporary land width 4.3 Gradients for drainage	
6	21-24	4.4 Super elevation – necessity & limiting valued	

7	25-28	**5.0 Points and crossings** 5.1 Definition, necessity of Points and crossings	
8	29-32	5.2 Types of points & crossings with tie diagrams **6.0 Laying & maintenance of track** 6.1 Methods of Laying	
9	33-36	6.1 maintenance of track 6.2 Details of a permanent way inspector	
10	37-40	**Section – B : BRIDGES** **7.0 Introductions** 7.1 Definitions 7.2 Components of a bridge 7.3 Classification of bridges 7.4 Requirements of an ideal bridge **8.0 Bridge Site investigation, hydrology & planning** 8.1 Selection of bridge site 8.2 Bridge alignments 8.3 Determination of flood discharge	
11	41-44	8.4 Waterway & economic span 8.5 Afflux, clearance & free board 8.6 Collection of bridge design data & sub surface investigation **9.0 Bridge foundation** 9.1 Scour depth 1	
12	45-48	9.1minimum depth of foundation 9.2 Types of bridge, foundations – spread foundation, pile foundation- pile driving, well foundation – sinking of wells, caission foundation	
13	49-52	9.3 Coffer dams **10.0 Bridge substructure and approaches** 10.1 Types of piers 10.2 Types of abutments	
14	53-56	10.3 Types of wing walls 10.4 Approaches **11.0 Permanent bridges** 11.1 Masonry bridges	
15	57-60	11.2 Steel bridges – classification with sketches 11.3 Concrete bridges – classification, brief description with sketches 11.4 IRC bridge loading **12.0 Culvert & cause ways** 12.1 Types of culvers - brief description 12.2 Types of causeways - brief description	