

GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Lesson Plan

Name of the Program	Diploma in Civil Engineering			
Course Name	RAILWAY & BRIDGE ENGINEERING		Course Code	Th-3
Course Year	Third	Semester	5th	Academic Period
				2022-23
No. of Classes allotted per Week		04	Planned Classes Required to Complete the Course	
			60	

Sl. No.	Topics to be covered	Module	No. of hours Required	Mode of Teaching
SECTION A: RAILWAYS				
1	Introduction : Railway terminology	I	1	Black board
2	Advantages of railways Classification of Indian Railways	I	1	Black board
3	2. Permanent way Definition, Components of a permanent way	II	1	Black board
4	2.2 Concept of gauge, Different gauges prevalent in India	II	2	Black board
5	Suitability of these gauges under different conditions	II	2	Black board
6	3. Track materials Rails Functions and requirement of rails	III	1	Black board
7	Types of rail sections, length of rails Rail joints – types, requirement of an ideal joint	III	1	Black board
8	3.1.4 Purpose of welding of rails & its advantages	III	1	Black board
9	3.1.5 Creep- definition, cause & prevention	III	1	Black board
10	Sleepers Definition, function & requirements of sleepers	III	1	Black board
11	Classification of sleepers Advantages & disadvantages of different types of sleepers	III	1	Black board
12	Ballast Functions & requirements of ballast	III	1	Black board
13	3.3.2 Materials for ballast	III	2	Black board
14	Fixtures for Broad gauge Connection of rails to rail-fishplate, fish bolts	III	1	Black board
15	3.4.2 Connection of rails to sleepers	III	1	Black board
16	4. Geometric for Broad gauge Typical cross – sections of single double broad gauge railway track in cutting embankment	IV	1	Black board
17	4.2 Permanent & temporary land width	IV	1	Black board
18	4.3 Gradients for drainage	IV	2	Black board
19 20	4.4 Super elevation – necessity & limiting valued	IV	2	Black board
21	Points and crossings Definition of related terms, Necessity of Points and	V	2	Black board

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	crossings, Components of turnout with diagram			
22	Types of points with diagram Types of crossings with tie diagrams	V	2	Black board
23	Laying & maintenance of track Methods of Laying, maintenance of track	VI	2	Black board
24	6.2 Duties of a permanent way inspector	VI	1	Black board
Section – B : BRIDGES				
25	Introductions Definitions Components of a bridge	I	2	Black board
26	Classification of bridges Requirements of an ideal bridge	I	2	Black board
27	2. Bridge Site investigation, hydrology & planning Selection of bridge site 2.2 Bridge alignments, 2.3 Determination of flood discharge	II	4	Black board
28	Waterway & economic span , Afflux, clearance & free board	II	3	Black board
29	3. Bridge foundation Scour depth	III	1	Black board
30	minimum depth of foundation, Bridge foundation	III	2	Black board
31	3.2 Types of bridge foundations- spread foundation, pile foundation	III	3	Black board
32	Pile foundation- well foundation – caisson foundation	III	2	Black board
33	Well components and their function	III	2	Black board
34	sinking of wells,	III	2	Black board
35	3.3 Cofferdams	III	1	Black board
36	4. Bridge substructure and approaches Types of piers	IV	1	Black board
37	4.2 Types of abutments	IV	1	Black board
38	4.3 Types of wing walls	IV	1	Black board
39	4.4 Approaches	IV	1	Black board
40	5. Culverts & causeways Types of culverts - brief description	V	1	Black board
41	5.2 Types of causeways - brief description	V	1	Black board
42	PREVIOUS YEAR QUESTION DISCUSSION		1	Black board
42	REVISION		1	Black board
44	REVISION		1	Black board

Signature of the Faculty

Signature of the HoD