

LESSON PLAN

PROGRAMME: DIPLOMA IN CIVIL ENGINEERING COURSE NAME: RAILWAY & BRIDGE ENGINEERING COURSE CODE: Th3 SEMESTER: 5 TH PERIODS/WEEK: 04 TOTAL PERIODS: 60	NAME OF THE FACULTY: UTKALIKA PRADHAN SESSION: WINTER
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CLASS	TOPIC
1	Introduction: Railway terminology, Advantages of railways
2	Advantages of railways
3	Classification of Indian Railways
4	Definition and components of a permanent way
5	Concept of gauge, different gauges prevalent in India
6	Suitability of gauges under different conditions
7	Rails: Functions and requirement of rails, Types of rail sections, length of rails
8	Types of rail sections, length of rails
9	Rail joints – types, requirement of an ideal joint
10	Purpose of welding of rails & its advantages
11	Types of Welding of rails
12	Creep- definition, causes
13	Prevention of creep
14	Sleepers: Definition, function & requirements of sleepers
15	Classification of sleepers & Advantages & disadvantages of different types of sleepers
16	Ballast: Functions & requirements of ballast,
17	Materials for ballast
18	Fixtures for Broad gauge: Connection of rails to rail-fishplate, fish bolts, Connection of rails to sleepers
19	Introduction to bridges: Definitions, Components of a bridge
20	Classification of bridges, Requirements of an ideal bridge
21	Selection of bridge site, Alignment,
22	Determination of Flood Discharge
23	Waterway & Afflux
24	Determination of afflux by Murrison's & Molesworth formula
25	Clearance & free board: Definitions & concept
26	Economic span: Concept & Derivation
27	Geometrics for broad gauge: Typical cross – sections of single & double broad gauge railway track in cutting and embankment
28	Permanent & temporary land width
29	Gradients for drainage
30	Super elevation – necessity & limiting value
31	Negative Super elevation: Concept
32	Super elevation design for BG track
33	Numerical problems on super elevation.
34	Numerical problems on negative super elevation.
35	Bridge foundation: Definitions & Types of bridge foundations

36	Spread foundation: Definition & types
37	Pile foundation- Definition, Pile driving
38	Well foundation – sinking of wells
39	Caisson foundation
40	Coffer dams: Definition, concept
41	Types of piers
42	Types of abutments
43	Types of wing walls
44	Approaches: Definition & types
45	Points and crossings: Definition, necessity of points and crossings
46	Types of points with tie diagrams
47	Types of crossings with tie diagrams
48	Methods of Laying of track
49	Maintenance of track: methods
50	Duties of a permanent way inspector
51	Culverts: Definition & concept
52	Types of culverts – brief description
53	Causeways: Definition & concept
54	Types of causeways- brief description
55	Revision of permanent way & it's components
56	Revision of geometric design of BG track
57	Numerical problem practice: Superelevation
58	Revision of components of a bridge
59	Numerical problem practice: Afflux determination
60	Revision of types of bridge foundation