

Lesson Plan

Course - Transportation Engg. (Th-2)

Semester- 3rd

Program- Civil Engineering

Institute - Govt. Polytechnic, Sonpur

Session - 2026-2027

Sl. No.	Week No.	Class No.	Topic to be Covered
1	1	Class 1	Unit I: Introduction, Role of Transportation in National Development
2	1	Class 2	Scope, Importance and Characteristics of Roads in India
3	1	Class 3	Different Modes of Transportation – Landway, Waterway, Airway
4	2	Class 1	Merits and Demerits of Roadway and Railway
5	2	Class 2	General Classification of Roads
6	2	Class 3	Selection and Factors Affecting Road Alignment
7	3	Class 1	Unit II: Camber – Definition, Purpose and Types as per IRC
8	3	Class 2	Kerbs, Road Margin, Road Formation and Right of Way
9	3	Class 3	Design Speed and Factors Affecting Design Speed (IRC)
10	4	Class 1	Gradient – Definition and Types as per IRC
11	4	Class 2	Sight Distance – Definition, Types and IRC Recommendations
12	4	Class 3	Simple Numericals on Sight Distance
13	5	Class 1	Curves – Necessity, Horizontal and Vertical Curves
14	5	Class 2	Extra Widening of Roads with Numerical Examples
15	5	Class 3	Super Elevation – Definition, Formula, Minimum & Maximum Values
16	6	Class 1	Method of Providing Super Elevation
17	6	Class 2	Standard Cross Sections of National Highway in Embankment
18	6	Class 3	Standard Cross Sections of National Highway in Cutting
19	7	Class 1	Unit III: Road Materials and Tests on Aggregates – Flakiness & Elongation Index
20	7	Class 2	Angularity Number Test
21	7	Class 3	Bitumen Tests – Penetration, Ductility, Flash & Fire Point, Softening Point
22	8	Class 1	Pavement – Definition, Types and Structural Components
23	8	Class 2	Construction of WBM Road
24	8	Class 3	Merits and Demerits of WBM & WMM Roads
25	9	Class 1	Construction of Flexible/Bituminous Roads
26	9	Class 2	Types and Properties of Bitumen, Emulsion, Cutback and Tar
27	9	Class 3	Prime Coat, Tack Coat, Seal Coat, Merits and Demerits of Bituminous Roads
28	10	Class 1	Cement Concrete Roads – Methods of Construction
29	10	Class 2	Alternate Bay and Continuous Bay Method
30	10	Class 3	Construction Joints, Fillers, Sealers, Types of Joints, Merits &

			Demerits
31	11	Class 1	Unit IV: Classification and Zones of Indian Railways
32	11	Class 2	Permanent Way – Ideal Requirements and Components
33	11	Class 3	Rail Gauge – Types and Factors Affecting Selection
34	12	Class 1	Rails and Rail Joints – Requirements and Types
35	12	Class 2	Creep of Rail – Causes and Prevention
36	12	Class 3	Sleepers – Functions, Requirements, Types and Density of Concrete Sleepers
37	13	Class 1	Ballast – Functions, Types and Suitability
38	13	Class 2	Rail Fixtures and Fastenings – Fish Plates, Spikes, Bolts, Keys, Bearing Plates and Chairs
39	13	Class 3	Anchors and Anti-Creepers
40	14	Class 1	Unit V: Rail Alignment and Standard Track Cross Sections
41	14	Class 2	Railway Track Geometry – Gradient, Curves, Grade Compensation, Super Elevation, Cant Deficiency, Negative Cant, Coning of Wheel and Tilting of Rail
42	14	Class 3	Branching of Tracks, Points & Crossings, Turnouts, Track Junctions
43	15	Class 1	Railway Stations – Purpose, Requirements, Technical Terms, Types and Site Selection
44	15	Class 2	Station Yards – Passenger, Goods, Locomotive and Marshalling Yards, Functions & Drawbacks
45	15	Class 3	Track Maintenance – Necessity, Classification, Tools, Organisation, Duties of Permanent Way Inspector, Gangmate and Keyman

Signature of Faculty
Civil Engg, GP Sonpur

Signature of HOD
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