

C. V. RAMAN POLYTECHNIC, BHUBANESWAR
LESSON PLAN

Session (2025-2026)

Discipline: Civil Engineering	Semester: 3 RD , Winter/2025	Name of the Teaching Faculty: Miss Sumitra Parida (Assistant Professor) Email ID: rashmi.sumi123@gmail.com
Subject: Transportation Engineering (CEPC 203)	No. of Days/Weeks: 03	Start Date: 14.07.2025 End Date: 15.11.2025

Week	Class Day	Theory Topics
1st	1st	Role of transportation in nation development.
	2nd	Scope, importance & characteristics of roads in India.
	3rd	Modes of transportation – land, water, air, merits & demerits of roadway and railway.
2nd	1st	Classification of roads.
	2nd	Factors affecting road alignment.
	3rd	Camber – Definition, purpose, types (IRC recommendations).
3rd	1st	Kerbs, road margin, formation, right of way.
	2nd	Design speed and its influencing factors (IRC).
	3rd	Gradient – Definition, types (IRC recommendations).

4th	1st	Sight Distance (SSD) – Types, simple numerical.
	2nd	Curves – Horizontal & Vertical; necessity and types.
	3rd	Extra widening of roads- Numerical problems, Super elevation- Definition, formulas (min/max), methods.
5th	1st	Cross-section of national highways in embankment, Cross-section of national highways in cutting.
	2nd	CLASS TEST / DOUBT CLEARING CLASS
	3rd	Road materials – Types and selection criteria.
6th	1st	Tests on aggregates: Flakiness, Elongation, Angularity
	2nd	Bitumen tests: Penetration, Ductility, Flash/Fire Point, Softening Point.
	3rd	Pavement – Definition, types, structural components.
7th	1st	Construction of WBM road – Procedure, merits & demerits.
	2nd	WMM road construction – Comparison with WBM, Flexible pavement: Construction of bituminous roads.
	3rd	Bitumen types: Emulsion, Cutback, Tar, Terms in Bituminous Roads – Prime coat, tack coat, seal coat.
8th	1st	DOUBT CLEARING CLASS.
	2nd	Merits and demerits of bituminous roads, Cement concrete road – construction method.
	3rd	Alternate and Continuous Bay Method, joints in CC road.
9th	1st	Fillers, sealers, merits & demerits of concrete roads.
	2nd	Railway system – Classification & zones.
	3rd	Permanent way – Ideal requirements & components.

10th	1st	DOUBT CLEARING CLASS.
	2nd	Rail gauge – Types, selection factors.
	3rd	Rails & rail joints – Types and requirements.
11th	1st	Creep of rail – Causes and prevention, Sleepers – Functions, types, density.
	2nd	Ballast – Function, types, suitability.
	3rd	Rail fixtures – Fish plates, bolts, spikes, keys, chairs.
12th	1st	Anchors, anti-creeper – Functions and uses.
	2nd	Track geometrics – Gradients, curves, super elevation.
	3rd	Cant deficiency, coning, tilting of rails.
13th	1st	Points and crossings, turnouts, junctions (crossovers, scissors, diamonds, triangles).
	2nd	Railway stations – Purpose, types, site selection.
	3rd	Station yard: Classification & functions; marshalling yard drawbacks.
14th	1st	Track Maintenance: Need, Types, Maintenance Tools & Their Functions.
	2nd	ASSIGNMENT SESSION -Topics based on unit-I to unit-V
	3rd	CLASS TEST / DOUBT CLEARING CLASS.
15th	1st	Previous year question Discussion
	2nd	Previous year question Discussion
	3rd	Previous year question Discussion

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CONCERNED FACULTY
14/12/25

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H.O.D
14/12/25