



LESSON PLAN OF CEPC203 TH:2 Transportation Engineering FOR THE SESSION 2026-27(WINTER-2026) BATCH-2025-28, GOVT. POLYTECHNIC,KANDHAMAL

Discipline: civil engineering	Semester: 3rd	Name of the Teaching Faculty: PRITHIRANJAN PRIYADARSHI PATRO Sr. Lect. in Civil Engg
Subject: CEPC203 TH:2 Transportation Engineering	No. of days/ per week class allotted: 3	Semester From Date : 1/07/2026 to Date: 5/11/2026 No. of Weeks: 15
Week	Class Day	Theory/ Practical Topics (as per Blooms Taxonomy)
1st	1st	Unit-I Overview of Highway Engineering , Role of Transportation in National Development (Remembering, Understanding)Topic: Importance of transportation, scope of roads in India.
	2nd	Characteristics and Modes of Transportation (Understanding)Topic: Characteristics of roads, comparison of roadway, railway, waterway, airway.
	3rd	Classification of Roads (Remembering, Understanding)Topic: General classification of roads (e.g., NH, SH, rural roads).
2nd	1st	Road Alignment – Selection and Factors (Understanding, Applying)Topic: Factors affecting road alignment (topography, traffic, cost).
	2nd	Review and Practical Application (Applying)Topic: Overview of Unit-I.
	3rd	Unit-II Geometric Design of Highway (Part 1) Camber and Kerbs (Remembering, Understanding)Topic: Definition, purpose, types of camber (IRC recommendations), kerbs, road margin.
3rd	1st	Design Speed and Right of Way (Understanding, Applying)Topic: Design speed, factors affecting it, road formation, right of way.
	2nd	Gradient (Understanding, Applying)Topic: Definition, types of gradients (IRC recommendations).
	3rd	Sight Distance (SSD) (Applying, Analyzing)Topic: Definition, types, IRC recommendations, simple numerical problems.
4th	1st	Curves in Highway Design (Understanding, Applying)Topic: Necessity, types of curves (horizontal, vertical).
	2nd	Unit-II Geometric Design of Highway (Part 2) Extra Widening of Roads (Applying, Analyzing)Topic: Extra widening, numerical examples.
	3rd	Super Elevation (Applying, Analyzing)Topic: Definition, formula for min/max super elevation, methods to provide it.
5th	1st	Standard Cross-Sections (Understanding, Applying)Topic: Cross-sections of national highways in embankment and cutting.
	2nd	Review and Practical Application (Evaluating)Topic: Geometric Design Overview.
	3rd	Case Study Analysis (Analyzing, Evaluating)Topic: Application of geometric design to a real-world highway project.
6th	1st	Unit-III Construction of Road Pavements (Part 1) Road Materials and Tests – Aggregates (Remembering, Understanding)Topic: Tests on aggregates (Flakiness, Elongation, Angularity Number).
	2nd	Road Materials and Tests – Bitumen (Understanding, Applying)Topic: Tests on bitumen (Penetration, Ductility, Flash/Fire Point, Softening Point).
	3rd	Pavement Types and Components (Understanding)Topic: Definition, types, structural components, and their functions.
7th	1st	WBM Road Construction (Applying, Analyzing)Topic: Construction of WBM roads, merits, demerits, WMM comparison.
	2nd	Bituminous Road Construction (Applying)Topic: Construction, types of bitumen, terms (prime coat, tack coat, seal coat).
	3rd	Unit-III Construction of Road Pavements (Part 2) Cement Concrete Roads – Construction (Understanding, Applying)Topic: Methods (Alternate, Continuous Bay), construction joints
8th	1st	Cement Concrete Roads – Joints and Merits (Analyzing)Topic: Types of joints, fillers, sealers, merits, demerits.
	2nd	Review of Pavement Construction (Evaluating)Topic: Overview of pavement types and construction.
	3rd	Practical Application – Pavement Design (Applying, Evaluating)Topic: Design a pavement for a specific road type
9th	1st	Case Study on Road Construction (Analyzing, Evaluating)Topic: Real-world road construction project analysis.
	2nd	Unit-IV Basics of Railway Engineering (Part 1) Indian Railways and Permanent Way (Remembering, Understanding)Topic: Classification, zones, permanent way requirements.
	3rd	Rail Gauges and Rails (Understanding, Applying)Topic: Rail gauges, types, factors affecting gauge selection, rail joints
10th	1st	Creep of Rail and Sleepers (Understanding, Applying)Topic: Creep causes/prevention, sleeper functions, types, concrete sleeper density.

