

DISCIPLINE: CIVIL ENGINEERING	SEMESTER III	NAME OF THE TEACHING FACULTY: SHAKTI SAMANTA SAHU
SUBJECT: TRANSPORTATION ENGINEERING	NO. OF DAYS PER WEEK CLAS ALLOTTED: 03 HOURS	NO. OF WEEKS: 18
Week No.	Day	Topics
1	1	Introduction, role of transportation in development of nation
	2	Scope & importance of roads in India and its characteristics
	3	Different modes of transportation- landway, waterway, airway. Merits and demerits of roadway and railway
2	1	General classification of roads.
	2	Selection and factors affecting road alignment. (UNIT-I END)
	3	Revision
3	1	Doubt Clearing Session
	2	Camber: Definition, purpose, types as per IRC – recommendations.
	3	Kerbs: Road margin, road formation, right of way.
4	1	Design speed and various factors affecting design speed as per IRC – recommendations.
	2	Gradient: Definition, types as per IRC – Recommendations.
	3	Sight distance (SSD): Definition, types IRC – recommendations, simple numerical. □
5	1	Monthly Test
	2	Curves: Necessity, types: Horizontal, vertical curves. □
	3	Extra widening of roads: numerical examples. □
6	1	Super elevation: Definition, formula for calculating minimum and maximum Super elevation and method of providing super-elevation. □
	2	Standards cross-sections of national highway in embankment and cutting. □
	3	Revision (UNIT II END)
7	1	Doubt Clearing Session
	2	Types of road materials and their Tests – Test on aggregates-Flakiness and Elongation In- dex tests, Angularity Number test
	3	Test on Bitumen- penetration, Ductility, Flash and Fire point test and Softening point test
8	1	Pavement – Definition, Types, Structural Components of pavement and their functions
	2	Monthly Test
	3	Construction of WBM road. Merits and demerits of WBM & WMM road.
9	1	Construction of Flexible pavement / Bituminous Road
	2	Types of Bitumen and its proper- ties, Emulsion, Cutback, Tar
	3	Terms used in BR-prime coat, tack coat, seal coat, Merits and Demerits of BR.
10	1	Cement concrete road -methods of construction, Alternate and Continuous Bay Method
	2	Construction joints, filler and sealers, merits and demerits of concrete roads. Types of joints.
	3	Revision (UNIT III END)
INTERNAL ASSESSMENT ON 3RD WEEK OF SEPTEMBER		
11	1	Doubt Clearing Session
	2	Classification of Indian Railways, zones of Indian Railways □
	3	Permanent way: Ideal requirements
12	1	Components: Rail Gauge, types, factors affecting selection of a gauge. □
	2	Rail, Rail Joints - requirements, types. □
	3	Creep of rail: causes and prevention. □
13	1	Sleepers - functions and Requirement, types - concrete sleepers and their density □
	2	Ballast - function and types, suitability. □
	3	Rail fixtures and fastenings – fish plate, spikes, bolts, keys, bearing plates, chairs
14	1	Types of anchors and anti-creepers.
	2	Revision(UNIT IV END)
	3	Doubt Clearing Session
15	1	Monthly Test
	2	Alignment- Factors governing rail alignment. □
	3	Track Cross sections – standard cross section of single and double line in cutting and em- bankment. Important terms-permanent land, formation width, side drains, □
16	1	Railway Track Geometrics: Gradient, curves- types and factors affecting, grade compensation,
	2	super elevation, limits of Super elevation on curves, cant deficiency, negative cant
	3	coning of wheel, tilting of rail. □
17	1	Branching of Tracks, Points and crossings, Turn out- types, components, functions and in- spection.
	2	Track junctions: crossovers, scissor cross over, diamond crossing, track triangle. □
	3	Station -Purpose, requirement of railway station, important technical terms, types of rail- way station, factors affecting site selection for railway station.
18	1	Station yard: Classification- Passenger, goods, locomotive and marshalling yards. Function & drawbacks of marshalling yards □
	2	Track Maintenance- Necessity, Classification, Tools required for track maintenance with their functions, Organisation of track maintenance, Duties of permanent way inspector, gangmate and key man. (UNIT-V END)
	3	Monthly Test

CONCERNED FACULTY

*Shakti*  
11/07/25

HOD/CIVIL ENG.

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