

<u>Discipline</u> Civil Engg	<u>Semester</u> 4 th	<u>Name of the teaching faculty</u> Mr. Gectonajali - Bhitra
<u>Subject</u> Highway	<u>No of day / Per week class allotted</u> 4	<u>Semester from date</u> 12/2/23 <u>to</u> 23/5/24 <u>date</u> <u>No of weeks</u> 15 ^w
<u>Week</u>	<u>class day</u>	<u>Theory</u>
1 st	1 st	Introduction :- Importance of Highway transportation: importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute. Functions of Indian Roads Congress. IRC classification of roads. Organisation of state highway department.
	2 nd	
	3 rd	
	4 th	
2 nd	1 st	Road Geometrics :- Glossary of terms used in geometric and their importance, right of way, formation width, road margin, road shoulder, Carriage way, side slopes, Kerbs, formation level, Camber and gradient. Design and average running Speed, Stopping and passing -
	2 nd	
	3 rd	

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		Sight distance.
	4 th	Necessity of curves, horizontal and vertical curves including transition curves and super-elevation, Methods of providing Super-elevation.
3 rd	1 st	Road Materials :- Difference types of road materials in use: Soil, aggregates, and binders
	2 nd	Function of soil as highway Subgrade.
	3 rd	California Bearing Ratio: methods of finding CBR value in the laboratory and at site and their significance.
	4 th	Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test.
4 th	1 st	<u>Road Pavements</u> :- Road pavements: Flexible and rigid pavement, their merits and demerits. Typical cross-sections, functions of various components
	2 nd	Flexible Pavements:

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	2nd	Sub-grade preparation: setting out alignment of road, setting out bench marks, control
	4th	pegs for embankment and cutting, borrow pits, making profile of embankment.
5th	1st	Construction of embankment, compaction, stabilizat. preparati
	2nd	of subgrade, gradient and alignment as per recommend
	3rd	ations of IRC, equipment used for subgrade preparation
		Sub base course: Necessity of sub base, stabilized sub base, purpose of stabilization (no designs)
	4th	Types of stabilization <ul style="list-style-type: none"> • Mechanical stabilization • Lime stabilization
6th	1st	<ul style="list-style-type: none"> • Cement stabilization • Fly ash stabilization
	2nd	Base Course:
	3rd	Preparation of base course, Brick Soling, stone soling and metalling, water Bound Macadam and wet-mix Macadam, Bituminous Constructions. Different types

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Surfacing:

- 4th
 - 7th
 - 1st
 - 2nd
- Surface dressing
 - (i) Premix Carpet and (ii) Semidense Carpet
 - Bituminous Concrete
 - Grouting

Rigid pavements:

4th Concept of concrete roads as per IRC specifications

Hill Roads:

1st Introduction:

8th 2nd TYPICAL cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling

3rd Breast walls, Retaining walls, different types of bends

Road Drainage:

4th Necessity of road drainage work, Cross drainage works

Surface and sub-surface drains, Location, Spacing and typical details of side drains

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9th	1st	side details of drains in cutting embankment, typical cross sections.
	2nd	<u>Road Maintenance:</u>
	3rd	Common types of road failures - their causes and remedie
	4th	Maintenance of bituminous road such as patch work and resurfacing
	1st	Maintenance of concrete roads - filling cracks, repairing joints, maintenance of shoulders (beam), maintenance of traffic control devices
10th	2nd	
	3rd	<u>Construction equipments:</u>
	4th	Preliminary ideas of the following plant and equipment: Hot mixing plant
11th	1st	Tipper tractors (wheel and crawler) scrapers, dumpers, shovels, graders roller dragline
	2nd	Asphalt mixer and tar boilers

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229 Road Pavers

4th Modern Construction equipments for roads.

12th

Revision

13th

14th