

MAHAMAYA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCE, NUAPADA
LESSON PLAN (MONTH: FEBRUARY TO MAY 2023)

NAME OF THE FACULTY:
Er.HIMANEE RATH

BRANCH: CIVIL ENGG.

SESSION:2022-23

Subject:- Highway Engg. Semester:-4TH

Week	Class Day	Theory Topics
1st	1 st	Introduction to Highway engg.
	2 nd	Importance of Highway transportation: importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute
	3 rd	Functions of Indian Roads Congress
	4 th	IRC classification of roads
	5 th	Organization of state highway department
2nd	1 st	Road Geometrics
	2 nd	Glossary of terms used in geometric and their importance
	3 rd	right of way, formation width
	4 th	road margin, road shoulder, carriage way
	5 th	side slopes, kerbs, formation level
3rd	1 st	camber
	2 nd	gradient
	3 rd	Design and average running speed
	4 th	stopping sight distance
	5 th	passing sight distance
4th	1 st	problems solved
	2 nd	problems solved
	3 rd	Necessity of curves
	4 th	horizontal curves
	5 th	vertical curves
5th	1 st	transition curves
	2 nd	super elevation
	3 rd	Methods o f providing super – elevation
	4 th	Problems and solution
	5 th	Problems and solution
6th	1 st	Problems and solution
	2 nd	Problems and solution
	3 rd	Road Materials
	4 th	Road Materials
	5 th	Binders
7th	1 st	Function of soil as highway Subgrade
	2 nd	California Bearing Ratio: methods of finding CBR valued in the laboratory and
	3 rd	
	4 th	CBR at site and their significance
	5 th	Testing aggregates: Abrasion test
8th	1 st	impact test, crushing strength test
	2 nd	water absorption test
	3 rd	soundness test
	4 th	Road Pavements : introduction

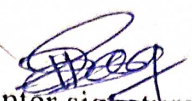
	5 th	Road Pavement: Flexible and rigid pavement, their merits and demerits, typical cross sections,
9th	1 st	functions of various components Flexible pavements:
	2 nd	Sub-grade preparation: Setting out alignment of road, setting out bench marks, control pegs for embankment and cutting, borrow pits, making profile of embankment, construction of embankment,
	3 rd	compaction, stabilization, preparation of subgrade, methods of checking camber, gradient and alignment as per recommendations of IRC, equipment used for subgrade preparation
	4 th	Sub base Course: definition and importance
	5 th	Necessity of sub base, stabilized sub base, purpose of stabilization (no designs)
10th	1 st	Types of stabilization <input type="checkbox"/> Mechanical stabilization <input type="checkbox"/> Lime stabilization <input type="checkbox"/> Cement stabilization <input type="checkbox"/> Fly ash stabilization
	2 nd	Base Course
	3 rd	Preparation of base course, Brick soling, stone soling and metalling,
	4 th	Water Bound Macadam and wet-mix Macadam, Bituminous constructions: Different types
	5 th	Surfacing: Surface dressing
11th	1 st	(i) Premix carpet and (ii) Semi dense carpet
	2 nd	Bituminous concrete and Grouting
	3 rd	Rigid Pavements
	4 th	Concept of concrete roads as per IRC specifications
	5 th	Hill Roads Introduction:
12th	1 st	Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling
	2 nd	Breast Walls, Retaining walls
	3 rd	different types of bends
	4 th	Road Drainage: Necessity of road drainage work, cross drainage works
	5 th	surface and sub-surface drains and storm water drains.
13th	1 st	Location, spacing and typical details of side drains,
	2 nd	side ditches for surface drainage, intercepting drains, pipe drains in hill roads,
	3 rd	details of drains in cutting embankment, typical cross sections
	4 th	Road Maintenance : introduction and importance
	5 th	Common types of road failures – their causes and remedies
14th	1 st	Maintenance of bituminous road such as patch work and resurfacing
	2 nd	Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm), maintenance of traffic control devices
	3 rd	Basic concept of traffic study, Traffic safety and traffic control signal
	4 th	Construction equipments: Preliminary ideas of the following plant and equipment:

15th

5 th	8.1 Hot mixing plant
1 st	8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline
2 nd	8.3 Asphalt mixer and tar boilers
3 rd	8.4 Road pavers
4 th	8.5 Modern construction equipments for roads
5 th	Problems and solution



Signature of faculty member



counter signature of HOD