

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN Session-2022-2023

Discipline: CIVIL ENGINEERING Engg. Semester: 4TH

Name of the Teaching Faculty: ARUN KUMAR BHOI

Subject: HIGHWAY ENGINEERING No. of Days/per week class allotted 5

Semester From Date : 14-02-23 To Date : 23-05-23 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
1	1st	Importance of highway transportation, history of road construction
	2nd	Modes of transportation
	3rd	Functions of Indian Road Congress
	4th	I.R.C classification of roads
	5th	Organisations of state highway department
2	1st	Road geometric and their uses and importance
	2nd	Right of way, Road structure
	3rd	Formation width, Road margin, carriage way
	4th	Formation level, kerb, camber, gradient, width of carriage way
	5th	Design and average running speed
3	1st	Stopping sight distance
	2nd	Overtaking sight distance

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Week	Class Day	Theory /Practical Topics
	3rd	PIEV theory
	4th	Reaction time of driver
	5th	Overtaking zone
4	1st	Numerical practice on SSD and OSD
	2nd	Necessity of curves
	3rd	Horizontal and vertical curves, transition curve
	4th	Road gradient
	5th	Superelevation, Necessity
5	1st	Advantages of superelevation, calculation
	2nd	Methods of providing superelevation
	3rd	Types of gradients
	4th	Factors affecting gradient

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	5th	Minimum and maximum superelevation
6	1st	Different types of road materials use in soil, aggregate, binders
	2nd	Functions of soil in highway subgrades
	3rd	CBR method finding in the Laboratory
	4th	Tests for road aggregates
	5th	Abrasion test
7	1st	Impact test
	2nd	crushing strength test
	3rd	water absorption test
	4th	Soundness test
	5th	Road pavement
8	1st	Flexible and rigid pavement their merits and demerits

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Week	Class Day	Theory /Practical Topics
	2nd	Typical cross-section, functions of various components
	3rd	Sub-grade preparation
	4th	Equipment used in subgrade preparation
	5th	Sub-base course, necessity of sub-base
9	1st	stabilized sub-base, purpose of stabilization
	2nd	Types of stabilization
	3rd	Base course, preparation of base course
	4th	Brick soling, stone soling and metaling
	5th	water bound macadam, wet-mix macadam
10	1st	Surfacing, surface dressing
	2nd	Bituminous concrete, grouting, rigid pavement
	3rd	Hill roads, typical cross-section

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	4th	Partly in cutting and partly in filling
	5th	Breast walls, Alignment in hill roads
11	1st	Retaining walls, drainage in hill roads
	2nd	Types of bends, classification of hill roads
	3rd	Geometric standards of hill roads
	4th	Basic principles of planning of hill roads
	5th	Necessity of road drainage work, cross-drainage work
12	1st	Surface and subsurface drains and storm water drains
	2nd	Spacing and typical details of side drains
	3rd	Intercepting drains
	4th	Pipe drains in hill roads
	5th	Details of drain cutting embankment typical cross-section

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13	1st	Requirements of good highway drainage system
	2nd	Common types of road failures, their causes and remedies
	3rd	Maintenance of bituminous roads
	4th	Maintenance of concrete roads
	5th	Basic concept of traffic study
14	1st	Traffic safety and traffic control signal
	2nd	Traffic surveys
	3rd	Road markings, road signs
	4th	Construction equipments
	5th	Excavating equipments
15	1st	Equipments for cement concrete roads
	2nd	Equipments for bituminous roads

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Week	Class Day	Theory /Practical Topics
	3rd	Compacting equipments
	4th	Road pavers
	5th	Modern construction equipments for roads

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