

**BHUBANANANDA ODISHA SCHOOL OF
ENGINEERING, CUTTACK
DEPARTMENT OF CIVIL ENGINEERING**



LESSON PLAN

SUBJECT: HIGHWAY ENGG. (TH 4)

FACULTY: SANGITA MOHANTY

ACCADEMIC SESSION: 2022-23

SEMESTER: 4TH

SEC: A

Sd/-
H O D (Civil Engg.)

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Discipline: Civil Engineering	Semester: 4th		Name of the teaching faculty: Sangita Mohanty
Subject: Highway Engg.	No of days per week class allotted: 05 periods/week (Mon, Thu, and sat-1 period each, Tue-2 Period)		Semester : From date: 14-02-2023 to date : 23-05-2023 No of weeks: 15 weeks
Week	Class Day	No of period available	Theory/Practical topic
1 st	14/02/2023	2	1.1 Importance of Highway transportation Importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute.
	16/02/2023	1	1.2 Functions of Indian Roads Congress
2 nd	20/02/2023	1	1.3 IRC classification of roads 1.4 Organisation of state highway department
	21/02/2023	2	2.1 Glossary of terms used in geometric and their importance, Right of way, formation width, road margin, road shoulder
	23/02/2023	1	Carriage way, side slopes, kerbs, formation level
	25/02/2023	1	Camber and gradient
3 rd	27/02/2023	1	2.2 Design and average running speed
	28/02/2023	2	Stopping sight distance Passing sight distance
	02/03/2023	1	Numericals on Stopping sight distance
	04/03/2023	1	Numericals on Passing sight distance
4 th	06/03/2023	1	Monthly class test 1
	09/03/2023	1	2.3 Necessity of curves, horizontal and vertical curves
	11/03/2023	1	Transition curves
5 th	13/03/2023	1	Super-elevation
	14/03/2023	2	Methods of providing super – elevation Numericals on transition curves
	16/03/2023	1	Numericals on superelevation
	18/03/2023	1	Discuss previous year questions

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6 th	20/03/2023	1	3.1 Difference types of road materials in use Soil, aggregates, and binders
	21/03/2023	2	3.2 Function of soil as highway Subgrade California Bearing Ratio
	23/03/2023	1	Methods of finding CBR valued in the laboratory and their significance
	25/03/2023	1	Methods of finding CBR valued at site and their significance
7 th	27/03/2023	1	3.4 Testing aggregates: Abrasion test, impact test
	28/03/2023	2	Crushing strength test, water absorption test & soundness test Discuss previous year questions
8 th	03/04/2023	1	4.1 Road Pavement: Flexible and rigid pavement, their merits and demerits
	04/04/2023	2	Typical cross-sections, functions of various components Flexible pavements: 4.2 Sub-grade preparation: Setting out alignment of road, setting out bench marks
	06/04/2023	1	control pegs for embankment and cutting, borrow pits
	08/04/2023	1	Making profile of embankment, construction of embankment, compaction, stabilization, preparation of subgrade
9 th	10/04/2023	1	Methods of checking camber, gradient and alignment as per recommendations of IRC, equipment used for subgrade preparation
	11/04/2023	2	4.3 Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization Types of stabilization □ Mechanical stabilization, Lime stabilization, Cement stabilization, Fly ash stabilization 4.4 Base Course: Preparation of base course, Brick soling, stone soling and metalling, Water Bound Macadam and wet-mix Macadam, Bituminous constructions: Different types
	13/04/2023	1	4.5 Surfacing: Surface dressing (i) Premix carpet and (ii) Semi dense carpet, Bituminous concrete, Grouting
	15/04/2023	1	4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications

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10 th	17/04/2023	1	Discuss previous year questions
	18/04/2023	2	5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut Typical cross-sections showing all details of a typical hill road partly in cutting and partly in filling
	20/04/2023	1	5.2 Breast Walls, Retaining walls
	22/04/2023	1	Different types of bends
11 th	24/04/2023	1	Discuss previous year questions
	25/04/2023	2	6.1 Necessity of road drainage work, cross drainage works 6.2 Surface and sub-surface drains and storm water drains
	27/04/2023	1	Location, spacing and typical details of side drains, side ditches for surface drainage, intercepting drains, pipe drains in hill roads
	29/04/2023	1	INTERNAL ASSESSMENT
12 th	01/05/2023	1	Details of drains in cutting embankment, typical cross sections.
	02/05/2023	2	7.1 Common types of road failures – their causes and remedies 7.2 Maintenance of bituminous road such as patch work and resurfacing
	04/05/2023	1	7.3 Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm), maintenance of traffic control devices
	06/05/2023	1	Monthly class test 2
13 th	08/05/2023	1	7.4 Basic concept of traffic study, Traffic safety and traffic control signal
	09/05/2023	2	Preliminary ideas of the following plant and equipment: 8.1 Hot mixing plant 8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline
	11/05/2023	1	8.3 Asphalt mixer and tar boilers
	13/05/2023	1	8.4 Road pavers
	15/05/2023	1	8.5 Modern construction equipments for roads.

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14 th	16/05/2023	2	Monthly class test 3
	18/05/2023	1	REVISION
	20/05/2023	1	REVISION
15 th	22/05/2023	1	PREVIOUS YEAR QUESTIONS DISCUSSION
	23/05/2023	2	PREVIOUS YEAR QUESTIONS DISCUSSION