

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



LESSON PLAN

SUBJECT: HIGHWAY ENGINEERING (TH4)

FACULTY: Swavi Shrabani Das

ACCADEMIC SESSION: 2023-24

SEMESTER: 4TH

SEC: A

Sd/-
HOD (Civil Engineering.)

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Discipline: Civil Engineering	Semester: 4th(A)		Name of the teaching faculty: Miss. Swavi Shrabani Das
Subject: Highway Engg.	No of days per week class allotted: 05 periods/week (Tue-1p, Wed-1p, Thu-2p and sat-1 period each)		Semester : From date: 16-01-2024 to date : 26-04-2024 No of weeks: 15 weeks
Week	Class Day	No of period available	Theory/Practical topic
1 st	16/01/24	1	1.1 Importance of Highway transportation
	17/01/24	1	Importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute.
	18/01/24	2	1.2 Functions of Indian Roads Congress
	20/01/24	1	
2 nd	24/01/24	1	1.3 IRC classification of roads
	25/01/24	1	1.4 Organisation of state highway department
	27/01/24	1	2.1 Glossary of terms used in geometric and their importance
3 rd	30/01/24	1	Right of way, formation width, road margin, road shoulder Carriage way, side slopes,
	31/01/24	1	kerbs, formation level
	01/02/24	2	Camber and gradient 2.2 Design and average running speed
	03/02/24	1	Stopping sight distance
	06/02/24	1	Stopping sight distance
	07/02/24	1	Passing sight distance

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4 th	08/02/24	2	Numericals on Stopping sight distance
	10/02/24	1	Numericals on Passing sight distance
5 th	13/02/24	1	Transition curves Super-elevation
	15/02/24	2	Methods of providing super – elevation
	17/02/24	1	Numericals on transition curves
6 th	20/02/24	1	Numericals on superelevation
	21/02/24	1	Discuss previous year questions 3.1 Difference types of road materials in use Soil, aggregates, and binders
	22/02/24	2	CLASS TEST 1
	24/02/24	1	3.2 Function of soil as highway Subgrade
7 th	27/02/24	1	California Bearing Ratio
	28/02/24	1	Methods of finding CBR valued in the laboratory and their significance
	29/02/24	2	methods of finding CBR valued at site and their significance
	02/03/24	1	3.4 Testing aggregates: Abrasion test, impact test, Crushing strength test, water absorption test & soundness test
8 th	06/03/24	1	Discuss previous year questions 4.1 Road Pavement: Flexible and rigid pavement, their merits and demerits
	07/03/24	2	Typical cross-sections, functions of various components
	09/03/24	1	Flexible pavements: 4.2 Sub-grade preparation: Setting out alignment of road, setting out bench marks, control pegs for embankment and cutting, borrow pits
	12/03/24	1	Making profile of embankment, construction of embankment, compaction, stabilization, preparation of subgrade Methods of checking camber, gradient and alignment as per recommendations of IRC, equipment used for subgrade preparation
	13/03/24	1	4.3 Sub base Course:

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9 th			Necessity of sub base, stabilized sub base,
	14/03/24	2	purpose of stabilization Types of stabilization
	16/03/24	1	Mechanical stabilization, Lime stabilization, Cement stabilization, Fly ash stabilization
10 th	19/03/24	1	4.4 Base Course: Preparation of base course, Brick soling, stone soling and metalling, Water Bound Macadam and wet-mix Macadam,
	20/03/24	1	4.4 Base Course: Preparation of base course, Brick soling, stone soling and metalling, Water Bound Macadam and wet-mix Macadam,
	21/03/24	2	CLASS TEST 2
	23/03/24	1	Bituminous constructions: Different types 4.5 Surfacing: Surface dressing (i) Premix carpet and (ii) Semi dense carpet, Bituminous concrete, Grouting
11 th	27/03/24	1	4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications Discuss previous year questions
	28/03/24	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
	30/03/24	1	Typical cross-sections showing all details of a typical hill road partly in cutting and partly in filling
	02/04/24	1	INTERNAL ASSESSMET
	03/04/24	1	INTERNAL ASSESSMET

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12 th	04/04/24	2	5.2 Breast Walls, Retaining walls Different types of bends
	06/04/24	1	6.1 Necessity of road drainage work, cross drainage works
13 th	08/04/24	2	6.2 Surface and sub-surface drains and storm water drains
	09/04/24	1	Location, spacing and typical details of side drains, side ditches for surface drainage, intercepting drains, pipe drains in hill roads Details of drains in cutting embankment, typical cross sections
	10/04/24	1	7.1 Common types of road failures – their causes and remedies
	13/04/24	1	7.2 Maintenance of bituminous road such as patch work and resurfacing
14 th	16/04/24	1	7.3 Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm), maintenance of traffic control devices
	18/04/24	2	7.4 Basic concept of traffic study, Traffic safety and traffic control signal Preliminary ideas of the following plant and equipment:
	20/04/24	1	8.1 Hot mixing plant
15 th	23/04/24	1	8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline
	24/04/24	1	8.3 Asphalt mixer and tar boilers
	25/04/24	2	8.4 Road pavers
	27/04/24	1	8.5 Modern construction equipments for roads
16 th	30/04/24	2	Discuss previous year questions