

LESSON PLAN OF 4th SEMESTER(2019-22) CIVIL ENGINEERING

Discipline :- CIVIL ENGG	Semester:- 4 th	Name of the Teaching Faculty:- SIKHYA BISWAL
Subject:- HIGHWAY ENGINEERING Th-4	No of Days per Week Class Allotted :- 05	Semester From:- <u>19th April 2021</u> To:- <u>13th August 2021</u> No of Weeks:- 17
Week	Class Day	Theory
1 st	1 st	1.0 Introduction 1.1 Importance of Highway transportation: importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute.
	2 nd	1.2 Functions of Indian Roads Congress
	3 rd	1.3 IRC classification of roads
	4 th	-do-
	5 th	1.4 Organisation of state highway department
2 nd	1 st	2.0 Road Geometrics 2.1 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
	2 nd	-do-
	3 rd	-do-
	4 th	-do-
	5 th	-do-
3 rd	1 st	-do-
	2 nd	-do-
	3 rd	2.2 Design and average running speed, stopping and passing sight distance
	4 th	-do-
	5 th	-do-
4 th	1 st	-do-
	2 nd	-do-
	3 rd	-do-
	4 th	-do-
	5 th	-do-
5 th	1 st	2.3 Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods of providing super – elevation
	2 nd	-do-
	3 rd	-do-
	4 th	-do-
	5 th	-do-
6 th	1 st	3.0 Road Materials 3.1 Difference types of road materials in use: soil, aggregates, and binders
	2 nd	-do-
	3 rd	3.2 Function of soil as highway Subgrade
	4 th	-do-
	5 th	3.3 California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance
7 th	1 st	-do-
	2 nd	3.4 Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test
	3 rd	-do-
	4 th	-do-
	5 th	4.0 Road Pavements 4.1 Road Pavement: Flexible and rigid pavement, their merits and demerits, typical

		cross-sections, functions of various components Flexible pavements ✓
8 th	1 st	-do-
	2 nd	-do-
	3 rd	4.2 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, compaction, stabilization, preparation of subgrade, methods of checking camber, gradient and alignment as per recommendations of IRC, equipment used for subgrade preparation
	4 th	4.3 Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization (no designs) Types of stabilization -Mechanical stabilization• Lime stabilization• Cement stabilization• Fly ash stabilization
	5 th	-do-
9 th	1 st	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
	2 nd	-do-
	3 rd	-do-
	4 th	4.5 Surfacing: Surface dressing• (i) Premix carpet and (ii) Semi dense carpet Bituminous concrete, Grouting
	5 th	-do-
10 th	1 st	4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications
	2 nd	-do-
	3 rd	5.0 Hill Roads: 5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling
	4 th	-do-
	5 th	-do-
11 th	1 st	5.2 Breast Walls, Retaining walls, different types of bend
	2 nd	-do-
	3 rd	-do-
	4 th	-do-
	5 th	6.0 Road Drainage: 6.1 Necessity of road drainage work, cross drainage work
12 th	1 st	-do-
	2 nd	-do-
	3 rd	-do-
	4 th	6.2 Surface and sub-surface drains and storm water drains. 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.
	5 th	-do-
13 th	1 st	-do-
	2 nd	7.0 Road Maintenance : 7.1 Common types of road failures – their causes and remedies
	3 rd	-do-
	4 th	7.2 Maintenance of bituminous road such as patch work and resurfacing
	5 th	-do-
14 th	1 st	7.3 Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm), maintenance of traffic control devices
	2 nd	-do-
	3 rd	7.4 Basic concept of traffic study, Traffic safety and traffic control signal
	4 th	8.0 Construction equipments: Preliminary ideas of the following plant and equipment: 8.1 Hot mixing plant

	5 th	8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline
15 th	1 st	8.3 Asphalt mixer and tar boilers
	2 nd	8.4 Road pavers
	3 rd	-do-
	4 th	8.5 Modern construction equipments for roads
	5 th	-do-
16 th	1 st	Revision Class
	2 nd	
	3 rd	
	4 th	
	5 th	
17 th	1 st	Revision class
	2 nd	
	3 rd	
	4 th	
	5 th	

Sekhya Biswas

Signature of the concerned Lecturer

M. Jais 19/04/21

Signature of the H.O.D

R. Pant 19/04/21

Signature of Academic Coordinator

Signature of the Principal

G.P. Puri