

LESSON PLAN FOR SESSION SUMMER (2023-24)

PROGRAMME : CIVIL ENGINEERING COURSE NAME : HIGHWAY ENGINEERING COURSE CODE : TH-4 SEMESTER : 4TH PERIODS/WEEK: 5 TOTAL PERIODS :75		NAME OF THE FACULTY: MR. AMLAN MOHANTY SESSION : 2023-24 From : 16/01/24 To :26/05/24
WEEK	CLASS	TOPICS
JANUARY 3 rd week	1	1. Introduction 1.1 Importance of Highway transportation: importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute.
	2	1.2 Functions of Indian Roads Congress.
	3	1.3 IRC classification of roads
	4	1.4 Organisation of state highway department
	5	2. 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
4 th week	6	2.2 Design and average running speed, stopping and passing sight distance
	7	2.3 Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods of providing super – elevation
	8	3.Road Materials 3.1 Difference types of road materials in use: soil, aggregates, and binders
	9	3.2 Function of soil as highway Subgrade
	10	3.3 California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance

FEBRUARY 1 st week	11	3.4 Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test
	12	4. Road Pavements 4.1 Road Pavement: Flexible and rigid pavement, their merits and demerits, typical cross-sections, functions of various components Flexible pavements:
	13	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
	14	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
	15	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 week	16	4.5 Surfacing: Surface dressing • (i) Premix carpet and (ii) Semi dense car Bituminous concrete • Grouting •
	17	4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications
	18	UNIT TEST
	19	5. 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
	20	5.2 Breast Walls, Retaining walls, different types of bends
3 rd week	21	6. Road Drainage: 6.1 Necessity of road drainage work, cross drainage works
	22	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

	23	Doubt Clear class
	24	Internal Exam
	25	Road Maintenance : 7.1 Common types of road failures
4 th Week	26	Road Maintenance : 7.1 Common types of road failures – their causes and remedies maintenance of shoulders (berm), maintenance of traffic control devices
	27	7.2 Maintenance of bituminous road such as patch work and resurfacing
	28	7.3 Maintenance of concrete roads – filling cracks, repairing joints,
	29	7.4 Basic concept of traffic study, Traffic safety and traffic control signal 8 Construction equipments
	30	UNIT TEST
MARCH 1 st week	31	Construction equipments: Preliminary ideas of the following plant and equipment: 8.1 Hot mixing plant
	32	8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers
	33	shovels, graders, roller dragline
	34	8.3 Asphalt mixer and tar boilers
	35	8.4 Road pavers
2 nd week	36	8.5 Modern construction equipments for roads.
	37	Doubt clear class

	38	UNIT TEST
	39	Design and average running speed, stopping and passing sight distance
	40	Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods of providing super – elevation
3 rd week	41	Difference types of road materials in use: soil, aggregates, and binders
	42	California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance

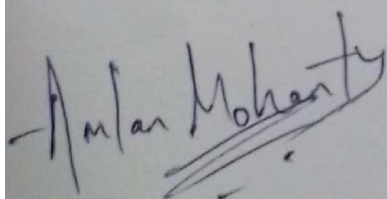
	43	Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test
	44	Flexible and rigid pavement, their merits and demerits, typical cross-sections, functions of various components Flexible pavements
	45	Preparation of base course, Brick soling, stone soling and metalling, Water Bound Macadam and wet-mix Macadam, Bituminous constructions, Different types
4 th week	46	Design and average running speed, stopping and passing sight distance
	47	Doubt clear class
	48	Doubt clear class
	49	Design and average running speed, stopping and passing sight distance
	50	UNIT TEST
MARCH 5TH WEEK	51	Doubt clear class
	52	Doubt clear class

	53	California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance
	54	Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test
	55	Doubt clear class

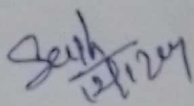
APRIL 1ST week	56	Revision Class
	57	Revision Class
	58	Doubt clear class
	59	Revision Class
	60	UNIT TEST
2ND week	61	Revision Class
	62	Doubt clear class
	63	Revision Class
	64	Revision Class
	65	Revision Class

3 RD week	66	Revision Class
	67	Doubt clear class
	68	Revision Class
	69	Revision Class
	70	Revision Class

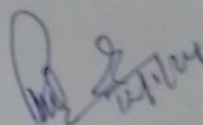
4 TH week	71	Revision Class
	72	Doubt clear class
	73	Revision Class
	74	Revision Class
	75	Revision Class



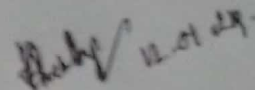
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