LESSON PLAN (2022-23)(S)					
Discipline:Civil Engineering				**Name of The Teaching Faculty:C.M.SWARUPA NANDA**	
Subject:HIGHWAY ENGINEERING (TH-4)				**Semester From Date:14-03-2023To Date 23-05-2023**	
Sem -4TH				**No. Of Weeks:15**	**5P/WEEK**
No. of Days/week class allotted:05 period per week(Tue,Wed,Thu,Fri,Sat -1 Period each)					**TOTAL PERIOD-75**
MONTH	**WEEK**	**DATE**	**DAYS/ PERIOD**	**Syllabus to be covered**	**NO. OF PERIODS AVAILABLE**
				CHAPTER-1 INTRODUCTION(5P)	5
February	3rd	14.2.2023	Tuesday	1.1 Importance of Highway transportation: importance organizations like Indian roads congress	1
		15.2.2023	Wednesday	1.1.1Ministry of Surface Transport, Central Road Research Institute.	1
		16.2.2023	Thursday	1.2 Functions of Indian Roads Congress	1
		17.2.2023	Friday	1.3 IRC classification of roads	1
	4th	21.2.2023	Tuesday	1.4 Organisation of state highway department	1
				CHAPTER-2(Road Geometrics)(20P)	20
		22.2.2023	Wednesday	2.1 Glossary of terms used in geometric and their importance, right of way, formation width, road margin, road shoulder.	1
		23.2.2023	Thursday	2.1.1 road shoulder, carriage way, side slopes	1
		24.2.2023	Friday	formation width, road margin	1
		25.2.2023	Saturday	2.1.2 Road shoulder, carriage way	1
	5th	28.2.2023	Tuesday	road shoulder, carriage way, side slopes	1

	1st	1.3.2023	Wednesday	2.2 Design and average running speed	1
		2.3.2023	Thursday	2.2 Design and average running speed	1
		3.3.2023	Friday	stopping and passing sight distance	1
		4.3.2023	Saturday	stopping and passing sight distance	1
	2nd	9.3.2023	Thursday	2.3 Necessity of curves, horizontal and vertical curves	1
		10.3.2023	Friday	2.3 horizontal and vertical curves including transition curves	1
		11.3.2023	Saturday	2.3 horizontal and vertical curves including transition curves	1
	3rd	14.3.2023	Tuesday	transition curves and super elevation	1
		15.3.2023	Wednesday	transition curves and super elevation	1
		16.3.2023	Thursday	2.3 Methods of providing super – elevation	1
		17.3.2023	Friday	2.3 Methods of providing super – elevation & PROBLEMS	1
		18.3.2023	Saturday	2.3 Necessity of curves,	1
March	4th	21.3.2023	Tuesday	2.3 Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods of providing super – elevation	1
		22.3.2023	Wednesday	2.3 Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods o f providing super – elevation	1
		23.3.2023	Thursday	2.3 Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods o f providing super – elevation	1
				CHAPTER-3(Road Materials)	9
		24.3.2023	Friday	3.1 Difference types of road materials in use: soil, aggregates, and binders	1

		25.3.2023	Saturday	3.2 Function of soil as highway Subgrade	1
	5th	28.3.2023	Tuesday	3.3 California Bearing Ratio	1
		29.3.2023	Wednesday	3.3 California Bearing Ratio	1
		31.3.2023	Friday	California Bearing Ratio: methods of finding CBR valued	1
April	2nd	4.4.2023	Tuesday	3.3 California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance	1
		5.4.2023	Wednesday	3.4 Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test	1
		6.4.2023	Thursday	3.4 Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test	1
		8.4.2023	Saturday	3.4 Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test	1
				CHAPTER-4(Road Pavements)(13P)	13
	3rd	11.4.2023	Tuesday	4.1 Road Pavement: Flexible and rigid pavement, their merits and demerits, typical cross-sections, functions of various components	1

	12.4.2023	Wednesday	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	1
	13.4.2023	Thursday	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,	1
	15.4.2023	Saturday	4.3 Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization (no designs) Types of stabilization • Mechanical stabilization • Lime stabilization	1
4th	18.4.2023	Tuesday	4.3 Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization (no designs) Types of stabilization • Cement stabilization • Fly ash stabilization	1
	19.4.2023	Wednesday	4.3 Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization (no designs) Types of stabilization • Fly ash stabilization	1
	20.4.2023	Thursday	4.4 Base Course: Preparation of base course, Brick soling, stone soling and metalling	1
	21.4.2023	Friday	4.4 Base Course: Water Bound Macadam and wet-mix Macadam, Bituminous constructions: Different types	1

		22.4.2023	Saturday	4.5 Surfacing: • Surface dressing (i) Premix carpet and (ii) Semi dense carpet	1
	5th	25.4.2023	Tuesday	4.5 Surfacing: • Bituminous concrete • Grouting	1
		26.4.2023	Wednesday	4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications	1
		27.4.2023	Thursday	4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications	1
		28.4.2023	Friday	4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications	1
				CHAPTER-5(Hill Roads)(07P)	7
		29.4.2023	Saturday	5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling	1
MAY	1st	2.5.2023	Tuesday	5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling	1
		3.5.2023	Wednesday	5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling	1
		4.5.2023	Thursday	5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling	1
		6.5.2023	Saturday	5.2 Breast Walls, Retaining walls, different types of bends	1
	2nd	9.5.2023	Tuesday	5.2 Breast Walls, Retaining walls, different types of bends	1
		10.5.2023	Wednesday	5.2 Breast Walls, Retaining walls, different types of bends	1
				CHAPTER-6(Road Drainage)(07P)	7

		11.5.2023	Thursday	6.1 Necessity of road drainage work, cross drainage works	1
		12.5.2023	Friday	6.1 Necessity of road drainage work, cross drainage works	1
		13.5.2023	Saturday	6.1 Necessity of road drainage work, cross drainage works	1
	3rd	16.5.2023	Tuesday	6.2 Surface and sub-surface drains and storm water drains. Location	1
		17.5.2023	Wednesday	6.2 spacing and typical details of side drains, side ditches for surface drainage, intercepting	1
		18.5.2023	Thursday	6.2.1 Drain pipe drains in hill roads, details of drains in cutting embankment, typical cross sections.	1
		20.5.2023	Saturday	6.2.1 Drain pipe drains in hill roads, details of drains in cutting embankment, typical cross sections.	1
				CHAPTER-7(Road Maintenance)(07P)	7
	4th	23.5.2023	Tuesday	7.1 Common types of road failures – their causes and remedies	1
				7.2 Maintenance of bituminous road such as patch work and resurfacing	1
				7.3 Maintenance of concrete roads – filling cracks, repairing joints,	1
				7.3 maintenance of shoulders (berm), maintenance of traffic control devices	1
				7.3 maintenance of shoulders (berm), maintenance of traffic control devices	1
				7.4 Basic concept of traffic study,	1
				7.4 Traffic safety and traffic control signal	1
				CHAPTER-8(Construction equipments)(07P)	**7**

				Preliminary ideas of the following plant and equipment:	1
				8.1 Hot mixing plant	1
				8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline	1
				8.3 Asphalt mixer and tar boilers	1
				8.4 Road pavers	1
				8.5 Modern construction equipments for roads.	1
				8.5 Modern construction equipments for roads.	1