

## LESSON PLAN FOR SUMMER 2022

WEEK	DATE	CLASS DAY	THEORY TOPICS	
<b>DISCIPLINE:- CIVIL ENGG.</b>		<b>SEMESTER:-4TH SEM</b>	<b>NAME OF THE TEACHING FACULTY:-Debashis Behera</b>	
<b>SUBJECT:- HIGHWAY ENGG. (TH-4)</b>		<b>NO. OF DAYS/PER WEEK CLASS ALLOTTED:- 5T</b>	<b>FROM DATE-10/03/2022 TO DATE- 10/06/2022</b>	
			<b>NO. OF WEEKS 14WEEKS</b>	
<b>CHAPTER-1 INTRODUCTION(5P)</b>				
1st week	10.03.2022	3rd	1.1 Importance of Highway transportation: importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute.	
	12.03.2022	4th	1.2 Functions of Indian Roads Congress	
2nd week	14.03.2022	1ST	1.3 IRC classification of roads	
	15.03.2022	2nd	1.4 Organisation of state highway department	
	<b>CHAPTER-2 Road Geometrics (20P)</b>			
	17.03.2022	3rd	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	
	21.03.2022	1ST	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	
3rd week	22.03.2022	2nd	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	
	24.03.2022	3rd	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	
	26.03.2022	4th	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	
	28.03.2022	1ST	2.2 Design and average running speed, stopping and passing sight distance	
4th week	29.03.2022	2nd	2.2 Design and average running speed, stopping and passing sight distance	
	31.03.2022	3rd	2.2 Design and average running speed, stopping and passing sight distance	
	02.04.2022	4th	2.2 Design and average running speed, stopping and passing sight distance	

5th week	04.04.2022	1ST	2.2 Design and average running speed, stopping and passing sight distance	
	05.04.2022	2nd	2.2 Design and average running speed, stopping and passing sight distance	
	07.04.2022	3rd	2.3 Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods of providing super – elevation	
	09.04.2022	4th	2.3 Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods of providing super – elevation	
6th week	11.04.2022	1ST	2.3 Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods of providing super – elevation	
	12.04.2022	2nd	2.3 Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods of providing super – elevation	
	16.04.2022	4th	2.3 Necessity of curves, horizontal and vertical curves including transition curves and super elevation, Methods of providing super – elevation	
<b>3 Road Materials (9P)</b>				
7TH WEEK	18.04.2022	1ST	3.1 Difference types of road materials in use: soil, aggregates, and binders	
	19.04.2022	2nd	3.2 Function of soil as highway Subgrade	
	21.04.2022	3rd	3.2 Function of soil as highway Subgrade	
	23.04.2022	4th	3.3 California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance	
8TH WEEK	25.04.2022	1ST	3.3 California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance	
	26.04.2022	2ND	3.4 Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test	
	28.04.2022	3RD	3.4 Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test	
	<b>4 Road Pavements (13P)</b>			
	30.04.2022	4TH	4.1 Road Pavement: Flexible and rigid pavement, their merits and demerits, typical cross-sections, functions of various components ,Flexible pavements:	

9TH WEEK	02.05.2022	1ST	<p>4.1 Road Pavement: Flexible and rigid pavement, their merits and demerits, typical cross-sections, functions of various components, Flexible pavements:</p> <p>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</p>
	05.05.2022	2nd	<p>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</p>
	07.05.2022	4TH	<p>4.3 Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization (no designs) Types of stabilization</p> <ul style="list-style-type: none"> <li>• Mechanical stabilization</li> <li>• Lime stabilization</li> <li>• Cement stabilization</li> <li>• Fly ash stabilization</li> </ul>
10TH WEEK	9.05.2022	1ST	<p>4.3 Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization (no designs) Types of stabilization</p> <ul style="list-style-type: none"> <li>• Mechanical stabilization</li> <li>• Lime stabilization</li> <li>• Cement stabilization</li> <li>• Fly ash stabilization</li> </ul>
	10.05.2022	2ND	<p>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</p>
	12.05.2022	3RD	<p>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</p>
	14.05.2022	4TH	<p>4.5 Surfacing:</p> <ul style="list-style-type: none"> <li>• Surface dressing</li> <li>(i) Premix carpet and (ii) Semi dense carpet</li> <li>• Bituminous concrete</li> <li>• Grouting</li> </ul>

11TH WEEK	17.05.2022	2ND	4.5 Surfacing: Surface dressing (i) Premix carpet and (ii) Semi dense carpet Bituminous concrete Grouting	
	19.05.2022	3RD	4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications	
	21.05.2022	4TH	4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications	
<b>5 Hill Roads (7P)</b>				
12TH WEEK	23.05.2022	1ST	5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in	
	24.05.2022	2ND	5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in	
	26.05.2022	3RD	5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling	
	28.05.2022	4TH	5.2 Breast Walls, Retaining walls, different types of bends	
13TH WEEK	31.05.2022	2ND	5.2 Breast Walls, Retaining walls, different types of bends	
	02.06.2022	3RD	5.2 Breast Walls, Retaining walls, different types of bends	
	<b>6 Road Drainage (7P)</b>			
	4.06.2022	4TH	6.1 Necessity of road drainage work, cross drainage works	
14th week	6.06.2022	1ST	6.1 Necessity of road drainage work, cross drainage works	
	7.06.2022	2ND	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.	
	09.06.2022	3RD	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.	
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EXTRA CLASSES REQUIRED	<b>7 Road Maintenance : (7P)</b>	
		7.1 Common types of road failures – their causes and remedies
		7.2 Maintenance of bituminous road such as patch work and resurfacing
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		7.3 Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm), maintenance of traffic control devices
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		7.4 Basic concept of traffic study, Traffic safety and traffic control signal
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	<b>8 Construction equipments:(7P)</b>	
		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
		8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline
		8.3 Asphalt mixer and tar boilers
		8.4 Road pavers
		8.5 Modern construction equipments for roads.
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