

## GOVT. POLYTECHNIC MAYURBHANJ LESSON PLAN- 2021/22(SUMMER)

<b>Discipline : CIVIL ENGG.</b>		<b>Semester: 4th Sem</b>		<b>Name of the Teaching Faculty :DAMAYANTI PRADHAN</b>	
<b>Subject : HIGHWAY ENGINEERING(Th.4)</b>		<b>per week class allotted : 05</b>		<b>Semester From date : 10.03.2022 To Date : 28.06.2022</b>	
<b>Month</b>	<b>Week</b>	<b>Day</b>	<b>Unit</b>	<b>Topics</b>	
<b>MARCH</b>	<b>2ND</b>	<b>4TH</b>	<b>UNIT-1</b>	<b>INTRODUCTION</b>	
				1.1 Importance of Highway transportation: importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute .	
	<b>3RD</b>	<b>5TH</b>		1.2 Functions of Indian Roads Congress	
		<b>1ST</b>		1.3 IRC classification of roads.	
		<b>2ND</b>		1.4 Organisation of state highway department	
		<b>3RD</b>		<b>Question Discussion</b>	
		<b>1ST</b>		<b>Question Discussion</b>	
	<b>4TH</b>		<b>UNIT-2</b>	<b>Road Geometrics</b>	
		<b>2ND</b>		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	
		<b>3RD</b>		2.2 Design and average running speed, stopping and passing sight distance	
		<b>4TH</b>		2.3 Necessity of curves, horizontal and vertical curves including transition curves	
		<b>1ST</b>		<b>QUESTION ANSWER DISCUSSION</b>	

APRIL	5TH	2ND		Class test-1
		3RD		Road Materials
		4TH		3.1 Difference types of road materials in use: soil, aggregates, and binders
	2ND	1ST	UNIT-3	3.2 Function of soil as highway Subgrade
		2ND		3.3 California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance
		3RD		3.4 Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test
		4TH		QUESTION PRACTICE
		5TH	UNIT-4	DISCUSSION
	4TH	1ST		Road Pavements
		2ND		4.1 Road Pavement: Flexible and rigid pavement, their merits and demerits,
		3RD		4.2 Sub-grade preparation: Setting out alignment of road, setting out bench marks, control pegs for embankment and cutting, borrow pits etc.
		4TH		4.3 Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization (no designs). Types of stabilization.
	5TH	1ST		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.
		2ND		4.5 Surfacing: Surface dressing (i) Premix carpet and (ii) Semi dense carpet. Bituminous concrete, Grouting
		3RD		4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications

MAY		2ND	UNIT-5	INTERNAL
	1ST	3RD		Hill Roads:
		4TH		5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling.
		5TH		5.2 Breast Walls, Retaining walls, different types of bends
	2ND	1ST	UNIT-6	practice question answer
		2ND		Road Drainage:
		3RD		6.1 Necessity of road drainage work, cross drainage works
		4TH		6.2 Surface and sub-surface drains and storm water drains. Location, spacing and typical details of side drains, side ditches for surface drainage etc.
		5TH		discussion
	3RD	2ND		Previous year question discussion
		3RD		INTERNAL
		4TH		discussion
		5TH	UNIT-7	Road Maintenance :
	4TH	1ST		7.1 Common types of road failures - their causes and remedies
		2ND		7.2 Maintenance of bituminous road such as patch work and resurfacing
		4TH		7.3 Maintenance of concrete roads - filling cracks, repairing joints, maintenance
		5TH		7.4 Basic concept of traffic study, Traffic safety and traffic control signal
				Question Discussion
				Construction equipments:

JUNE		5TH	UNIT-8	Preliminary ideas of the following plant and equipment:
	5TH	2ND		8.1 Hot mixing plant
	1ST	3RD		8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels,
		4TH		8.3 Asphalt mixer and tar boilers
		5TH		8.4 Road pavers
	2ND	1ST		8.5 Modern construction equipments for roads.
		2ND		Question Discussion
		3RD		Previous year question discussion
		4TH		Previous year question discussion
		5TH		Question Discussion
	3RD	1ST		practice question answer
		4TH		Chapter -1 Discussion
		5TH		do
	4TH	1ST		Chapter -2 Discussion
		2ND		Chapter -3,4 Discussion
		3RD		do
		4TH		Previous year question discussion
		5TH		Chapter -5,6 Discussion
	5TH	1ST		Chapter -7,8 Discussion
		2ND		do

H.O.D  
SIGNATURE

ACADEMIC COORDINATOR  
SIGNATURE

SUBJECT EXPERT SIGNATURE