

ACADEMIC LESSON PROGRESS FOR SUMMER 2023
 DEPT. OF CIVIL ENGG. GOVT. POLYTECHNIC BALASORE
 NAME OF THE FACULTY – GAYATRI JENA
 HIGHWAY ENGINEERING

Course code- Th-4

Theory – 5P/W

exam-80

Total period – 75P/Sem

Semester - 4th Civil Engg.

3hrs

Class test- 20

End semester

Total mark- 100

Examination – 3 hrs.

DATE	TOPIC AS PER LESSON PLAN	ACTUALLY TOPIC COVERED	SIGNATURE
16/2/23	Introduction: Importance of Highway transportation: importance organizations like Indian roads congress,	Introduction of Highway trans- portation. – RTM TM Construct Important organization like IRC.	<u>Jena</u>
17/2/23	Ministry of Surface Transport, Central Road Research Institute.	ministry of surface transport, CRRI	<u>Jena</u>
20/2/23	Functions of Indian Roads Congress	– Function of IRC	<u>Jena</u>
21/2/23	IRC classification of roads	– IRC classification of roads.	<u>Jena</u>
21/2/23	Organisation of state highway department	– organisation of state highway	<u>Jena</u>
22/2/23	ROAD GEOMETRICS: Elements of geometric design	– Elements of geometric design	<u>Jena</u>
24/2/23	Glossary terms used in geometric and their importance like Design speed, topography and Design hourly volume and capacity.	– Revision of previous class. – Design speed, topography & Design hourly volume & capacity.	<u>Jena</u>
27/2/23	Cross section elements: right of way, Formation width and road margin.	– C/S elements: right of way, formation width & Road margin.	<u>Jena</u>
28/2/23	Road shoulders, parking lanes, lay-byes.	Road shoulders, parking lanes, Lay byes.	<u>Jena</u>
28/2/23	Bus bays, drive ways, cycle tracks, foot path and guard rails	Bus bays, drive ways, cycle tracks, foot path & guard rails	<u>Jena</u>
01/03/23	Carriage way, side slopes, kerbs	carriage way, side slopes & kerbs.	<u>Jena</u>
01/03/23	Formation level, camber and gradient.	Formation level, camber, gradient	<u>Jena</u>
01/03/23	Definition of sight distance Types of sight distance.	– Revision, Definition of sight distance – Types of sight distance	<u>Jena</u>
10/3/23	Brief knowledge of stopping sight distance	– Brief knowledge of SSD.	<u>Jena</u>
17/3/23	PIEV THEORY: Perception time, intellection time, emotion time and volition time	PIEV Theory – Perception time, Intellection time, emotion & Volition time.	<u>Jena</u>
21/3/23	Numerical based on stopping sight distance(SSD)	– Numerical based on SSD.	<u>Jena</u>
21/3/23			

27/3/23	Overtaking sight distance(OSD)	OSD full form, definition. Briefly explained with Exp.	Yen
28/3/23	Numerical based on Overtaking sight distance (OSD) Or passing sight distance.	Numerical based on OSD or passing sight distance.	Yen
28/3/23	Necessity of curves, horizontal curve, Vertical curves and its type.	Necessity of Curves, horizont- al curve & Vertical Curves & its type	Yen
29/3/23	Transition curves Requirement of transition curve in highway construction.	Transition Curves - Requirement of transition curve in highway Constr	Yen
31/3/23	Definition of super elevation Necessity of super elevation	Def'n of Super elevation - Necessity of Super elevatn	Yen
3/4/23	Methods of providing super elevation Maximum super elevation for different terrain.	Methods of Providing super elevation, maxim super elevatn for diff. terrain	Yen
4/4/23	Numerical based on super elevation on curve	Numerical based on Super- elevation on Curve	Yen
4/4/23	Extra widening of pavement Mechanical widening Psychological widening	Extra widening of pavement, mechanical widening, psycholog- cal widening	Yen
5/4/23	Numerical based on extra widening of pavement.	Numerical based on Extra Widening of Pavement	Yen
6/4/23	ROAD MATERIALS: Different types of road materials in use: soil aggregates	Different types of road materials in use: soil aggregates	Yen
11/4/23	Binders and its properties	Binders & its properties .	Yen
12/4/23	Layers of pavement.	Layers of pavement .	Yen
18/4/23	Function of soil as highway subgrade.	Function of soil as highway subgrade .	Yen
19/4/23	California bearing ratio: Procedure of CBR test.	CBR test - Procedure & its Use -	Yen
29/4/23	Method of finding CBR value at laboratory and at sites and its significance	Method of finding CBR Value at laboratory and at its sites & its signifi-	Yen
25/4/23	Testing of aggregates: Abrasion test.	Abrasion test	Yen
26/4/23	Impact test and crushing of aggregate test.	Impact test & crushing of aggregate	Yen
27/4/23	Water absorption test and soundness test	water absorption test & soundness	Yen
27/4/23	ROAD PAVEMENTS: Definition of pavement, Flexible pavement with cross section	Definition of Pavement Flexible pavement with C.S.	Yen
2/5/23	Merits and demerits of flexible pavement.	Merits & demerits of flexible pavement	Yen
3/5/23	Sub-grade preparation: Setting out alignment of road, setting out bench marks ,control pegs for embankment	Subgrade preparatn & Setting out alignment, BM, Control pegs for embankment	Yen

4/5/23	Borrow pits, making profile of embankment, construction of embankment, compaction and stabilization	Borrow pits, making profile of embankment, constn, compaction & stabilization.	Open
9/5/23	Preparation of subgrade, methods of checking camber, gradient and alignment as per IRC	Preparation of subgrade, methods of checking camber, gradient, alignment as per IRC	Open
11/5/23	Sub base course: Necessity of sub base, stabilised sub base. Purpose of stabilization	Sub base course: Necessity, stabilized sub base Purpose of stabilization -	Open
11/5/23	Types of stabilization	Types of stabilization.	Open
12/5/23	Base course: Preparation of base course, brick soling, stone soling and metalling.	Base course: Preparation, brick soling, stone soling, & metalling.	Open
12/5/23	Water bound macadam, wet mix macadam.	WBM road, wet mix macadam road concept.	Open
12/5/23	Bituminous and its different types	Bituminous & its types.	Open
12/5/23	Surfacing: Surface dressing, premix carpet and semi dense carpet	Surfacing: Surfacing, premix carpet, semidense carpet	Open
12/5/23	Bituminous concrete and grouting.	Bituminous concrete & Grouting	Open
12/5/23	Rigid pavement with its cross section, Its merits and its demerits.	Rigid Pavement with its c/s, its merits & demerits .	Open
13/5/23	HILL ROADS: Introduction of hill roads.	Hill roads? Introduction of hill roads.	Open
13/5/23	Typical cross sections of all details of hill road in cutting.	Hill roads typical c/s in cutting.	Open
13/5/23	Typical cross sections of all details of hill road in partly in cutting.	Hill roads typical c/s in partly in cutting	Open
13/5/23	Typical cross sections of all details of hill road in partly in cutting.	Hill roads typical c/s in partly in cutting .	Open
13/5/23	Breast walls in hill roads.	Breast wall definition in hill roads.	Open
	Retaining walls in hill roads	Retaining walls .	Open
13/5/23	Different types of bend in hill roads.	Different types of bend in hill roads .	Open
13/5/23	ROAD DRAINAGE: Necessity of road drainage work.	Road drainage: Necessity	Open
13/5/23	Cross drainage works and its type.	Cross drainage works & its type	Open
13/5/23	Surface and sub-surface drains and storm water drains.	Surface & subsurface & storm water drains	Open

10/5/23	Typical details of side drains.	Details of side drains	Yen
10/5/23	Side ditches for surface drainage.	Side ditches for Surface drainage details	Yen
10/5/23	Intercepting drains and pipe drains in hill roads.	Intercepting drains & pipe drains in hill roads.	Yen
10/5/23	Details of drains in cutting embankment And typical cross section.	Details of drains in cutting & its cross section	Yen
10/5/23	ROAD MAINTENANCE: Introduction, necessity of road maintenance.	Road maintenance introduction Necessity	Yen
10/5/23	Common types of road failures-their causes.	Common types of road failures	Yen
10/5/23	Remedies of common type of road failures.	Remedies of road failures	Yen
10/5/23	Maintenance of bituminous road such as Patch work and resurfacing.	Maintenance of bituminous road like patch work & resurfacing	Yen
10/5/23	Maintenance of concrete roads- Filling crack repairing joints.	Maintenance of concrete roads. Filling cracking, repairing	Yen
10/5/23	Maintenance of shoulders (berm), Maintenance of traffic control devices.	Maintenance of shoulders (berm), traffic control devices	Yen
10/5/23	Basic concept of traffic study , traffic safety and Traffic control signals.	Traffic study basic concept Traffic safety, traffic signals	Yen
10/5/23	CONSTRUCTION EQUIPMENT: Hot mixing plant, tippers.	Hot mixing plant definition Tippers	Yen
10/5/23	Tractors, scrapers and bull dozer.	Tractors, scrapers & bull	Yen
10/5/23	Dumpers, shovels and graders.	Dumpers, shovels & graders	Yen
10/5/23	Roller and draglines.	Roller & dragline details	Yen
10/5/23	Asphalt mixers and tar boilers.	Asphalt mixers & tar boilers	Yen
10/5/23	Road pavers	Road pavers	Yen
10/5/23	Modern construction equipment for roads.	Modern const' equipment	Yen

Yen