

GOVERNMENT POLYTECHNIC, SAMBALPUR (RENGALI)

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LESSON PLAN OF HIGHWAY ENGG.(TH-4) 4TH SEM, CIVIL ENGG FOR SUMMER 2024 W.E.F. 16.01.2024

WEEK NO.	TOPIC TO BE COVERED	PERIODS ASSIGNED PER TOPIC	PERIODS AVAILABLE PER WEEK
W-1	Introduction 1.1 Importance of Highway transportation: importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute. 1.2 Functions of Indian Roads Congress 1.3 IRC classification of roads 1.4 Organisation of state highway department	5	5
W-2	2.0-Road Geometrics. 2.1- Glossary of term used in geometrie and their importance , right of way formation width , road margin, road shoulder, carriage way, side slopes, kerbs formation level, camber and gradient. 2.2 Design and average running speed, stopping and passing sight distance elevation, Methods of providing super – elevation 2.3 Necessity of curves, horizontal and vertical curves including transition curves and super	20	5
W-3			5
W-4			3+2 EXTRA
W-5			5
W-6	Road Materials 3.1 Difference types of road materials in use: soil, aggregates, and binders 3.2 Function of soil as highway Subgrade 3.3 California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance 3.4 Testing aggregates: Abrasion	9	5
W-7			4
W-8	Road Pavements 4.1 Road Pavement: Flexible and rigid pavement, their merits and demerits, typical cross-sections, functions of various components Flexible pavements: 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 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 4.4 Base Course: Preparation of base course, Brick soling, stone soling and metalling, Water Bound 4.5 Surfacing: ☐ Surface dressing (i) Premix carpet and (ii) Semi dense carpet ☐ Bituminous concrete ☐ Grouting 4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications	13	1
W-9			5
W-10			2

W-11	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 5.2 Breast Walls, Retaining walls, different types of bends	7	2
			5
W-12	Road Drainage: 6.1 Necessity of road drainage work, cross drainage works 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.	7	5
W-13			2
W-14	Road Maintenance : 7.1 Common types of road failures – their causes and remedies 7.2 Maintenance of bituminous road such as patch work and resurfacing 7.3 Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm), maintenance of traffic control devices 7.4 Basic concept of traffic study, Traffic safety and traffic control signal	7	3
			4
W-15	8.0- Construction equipments: 8.1- Hot mixing plant. 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.	7	1+2 EXTRA
			2+2 EXTRA


16/10/24

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16/10/24

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