UTKAL INSTITUTE OF ENGINEERING & TECHNOLOGY

DISCIPLINE:	**SEMESTER:**			
CIVIL	**4TH Sem**	**NAME OF THE TEACHING FACULTY: Er.TEJAWSINI DAS**		
SUBJECT:	No of Days/Per	Semester From Date:16/01/2024		
Th4. HIGHWAY ENGINEERING	week class allotted: **5** Class P/W**(75)**	To Date:26/04/2024		
		No. Of Weeks: **15**		
WEEK	**CLASS DAY**	**THEORY TOPICS**	**REMARKS**	
1st	1st	Introduction :Importance of Highway transportation: importance organizations like Indian roads congress	Date	Dean/Principal
	2nd	Ministry of Surface Transport, Central Road Research Institute.		
	3rd	Functions of Indian Roads Congress		
	4th	IRC classification of roads		
	5th	Organisation of state highway department		
	1st	Road Geometrics : Glossary of terms used in geometric and their importance		
	2nd	Road Geometrics : Glossary of terms used in geometric and their importance		

2nd	3rd	Right of way, formation width, road margin, road shoulder		
	4th	Right of way, formation width, road margin, road shoulder		
	5th	carriage way, side slopes, kerbs, formation level, camber and gradient		
3rd	1st	carriage way, side slopes, kerbs, formation level, camber and gradient		
	2nd	carriage way, side slopes, kerbs, formation level, camber and gradient		
	3rd	Design and average running speed,		
	4th	REVISSION CLASS		
	5th	Design and average running speed,		
4th	1st	Design and averageStopping and passing sight distance		
	2nd	Design and averageStopping and passing sight distance		
	3rd	Design and averageStopping and passing sight distance		
	4th	Necessity of curves		
	5th	Horizontal and vertical curves including transition curves		
5th	1st	Horizontal and vertical curves including transition curves,and super elevation		
	2nd	Horizontal and vertical curves including transition curves,and super elevation		
	3rd	Methods o f providing super – elevation		
	4th	Methods o f providing super – elevation		
	5th	DOUBT CLEAR CLASS		
	1st	Road Materials :Difference types of road materials in use: soil		

6th	2nd	Difference types of road materials in use: aggregates		
	3rd	Difference types of road materials in use: binders		
	4th	Function of soil as highway Subgrade		
	5th	California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance		
7th	1st	Testing aggregates: Abrasion test		
	2nd	Testing aggregates: impact test,		
	3rd	Testing aggregates: , crushing strength test& soundness test		
	4th	Testing aggregates:water absorption test		
	5th	Road Pavement: Flexible and rigid pavement, their merits and demerits,		
8th	1st	Typical cross-sections, functions of various components		
	2nd	Flexible pavements: Sub- grade preparation:Setting out alignment of road, setting out bench mark		
	3rd	embankment and cutting, borrow pits, making		
	4th	construction of embankment, compaction, stabilization, preparation of subgrade,		
	5th	methods of checking camber, gradient and alignment as per recommendations of IRC		
	1st	Equipment used for subgrade preparation		
	2nd	Sub base Course: Necessity of sub base, stabilized sub base,		

9th	3rd	purpose of stabilization (no designs) Types of stabilization,Mechanical stabilization		
	4th	Lime stabilization Cement stabilization Fly ash stabilization		
	5th	Base Course: Preparation of base course, Brick soling, stone soling and metalling, Water Bound Macadam and wet-mix Macadam, Bituminous constructions: Different types		
10th	1st	Surfacing: Surface dressing (i) Premix carpet and (ii) Semi dense carpet Bituminous concrete Grouting		
	2nd	Rigid Pavements: Concept of concrete roads as per IRC specifications		
	3rd	Hill Roads: Introduction		
	4th	Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling		
	5th	Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling		
11th	1st	Breast Walls, Retaining walls, different types of bends		
	2nd	Breast Walls, Retaining walls, different types of bends		
	3rd	Breast Walls, Retaining walls, different types of bends		
	4th	REVISSION CLASS		
	5th	Road Drainage: Necessity of road drainage work, cross drainage works		

12th	1st	Road Drainage: Necessity of road drainage work, cross drainage works		
		Surface and sub-surface drains and storm water drains		
	2nd	Location, spacing and typical details of side drains,		
	3rd	side ditches for surface drainage, intercepting drains		
		pipe drains in hill roads, details of drains in cutting embankment		
	4th	Typical cross sections.		
	5th	Road Maintenance : Common types of road failures		
13th	1st	Types of road failures – their causes and remedies		
	2nd	Maintenance of bituminous road such as patch work and resurfacing		
	3rd	Maintenance of concrete roads – filling cracks, repairing joints		
	4th	Maintenance of shoulders (berm), maintenance of traffic control devices		
	5th	Basic concept of traffic study		
	2nd	Traffic safety and traffic control signal		
	3rd	Construction equipments: Preliminary ideas of the following plant and equipment.		
	4th	Hot mixing plant		
	5th	Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline		

15th	1st	Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, graders, roller dragline		
	2nd	Asphalt mixer and tar boilers		
	3rd	Road pavers		
	5th	Chittaranjan Parida		

HOD DEAN PRINCIPAL

Tejaswini Das