MERI College of Engineering & Technology (MERI-CET)

Session: 2020-2021   **Course:** B.Tech.

Department: Civil Engineering   **Semester:** 5TH

Subject: Highway Engineering 1, PCC-CE-303-G   **Faculty name:** Mr. Ankit Sharma

LECTURE PLAN

WEEK	LECTURE	TOPIC	LAB	EXPERIMENT TITLE
1st	1st	Modes of Transportation, History of Road Development, Scope of Highway Engineering	1st	To determine the flakiness index and elongation index of aggregates.
	2nd	Road Development Plans in India		
2nd	1st	PMGSY and other Highway Projects	2nd	To determine the California Bearing Ratio (CBR) value of soil and aggregate
	2nd	Classification of Highways, Locations and Functions, Road Patterns.		
3rd	1st	Necessity and Significance of Highway Planning, Highway Alignment and Surveys	3rd	To determine the impact value of aggregate and composite material
	2nd	Highway Alignment and Surveys		
4th	1st	Factors Influencing Highway Alignment, Engineering Surveys for Alignment	4th	To determine the crushing strength of aggregate and composite material
	2nd	Conventional & ModernMethods of Highway Alignments.		
5th	1st	Urban, Rural Roads and their Cross-Sections	5th	To determine the abrasion and attrition value of aggregate by using Deval attrition test.
	2nd	Design of Cross Section Elements- Right of Way and Width Considerations		
6th	1st	Roadway, Shoulders, Kerbs Traffic Barriers, Medians, Frontage Roads	6th	To determine the abrasion and attrition value of aggregate by using Los Angeles abrasion test
	2nd	Facilities for Pedestrians, Bicycles, Buses and Trucks		
7th	1st	Traffic Separators and Road Margin, Design of Sight Distances	7th	To determine the abrasion and attrition value of aggregate by using Dory abrasion test
	2nd	Design of Sight Distances, IRC Recommended Values.		
8th	1st	Super-Elevation and its Design, Extra-Widening, Radius of Circular Curves	8th	To determine the water absorption of aggregate
	2nd	Length of Transition Curves,		

		Gradient, Summit and Valley Curves		
9th	1st	Introduction to Software like MXROAD	9th	To find out the durability of aggregate
	2nd	Subgrade Soil and its Characteristics, Compaction Methods		
10th	1st	Evaluation of Soil Strength by Different Tests	10th	To determine the mechanical and wear properties of tiles/blocks: Flexural strength
	2nd	Aggregates and their Characteristics, Various Tests on Aggregates		
11th	1st	IRC/IS Specifications for Suitability of Aggregates	11th	To determine the mechanical and wear properties of tiles/blocks: Abrasion value of tiles/blocks.
	2nd	Bitumen: Origin, Preparation, Properties and their Testing Methods		
12th	1st	Bituminous Road Binders: Requirements Constitution, Selection Criterion for Different Binders	12th	Traffic volume and speed study using videography technique.(Demonstration only)
	2nd	Bituminous Emulsions and Cutbacks: Preparation, Characteristics, uses and their Tests		
13th	1st	Bituminous Mixes: Mechanical Properties and Characteristics, Bituminous Mix Design: Methods, Performance-Based Bitumen Specifications	13th	Lab Manual Checking.
	2nd	Polymers and Rubber Modified Bitumen in Bituminous Mixes, Waste Plastic in Bituminous Mixes		
14th	1st	Traffic Characteristics, Traffic Studies and their Presentation, Traffic Capacity Studies, PCU and Axle Load Survey	14th	Doubt Class
	2nd	Intersections Design, Design of Sign and Signals, Parking and Accident Studies, Highway Safety Measures		
15th	1st	Objectives of Intelligent Transportation Systems, Historical Background, Benefits of ITS, Data Collection Techniques for ITS-Detectors	15th	Doubt Class

	2ⁿᵈ	Automatic Vehicle Location, Automatic Vehicle Identification, Geographic Information Systems and Video Data Collection		