

## G.P. DHANGAR (Fatehabad)

Name of Faculty : Mrs. Sunita

Discipline : CIVIL ENGG.

Semester : 5th

Subject : Highway Engg.

Week	Lecture No.	Topic Covered
1	1	Importance of Highway engineering
	2	Functions of IRC, CRRI, MoRT&H, NHAI
	3	Classification of roads
	4	Glossary of terms used in road geo-metrics and their importance
2	5	Average running speed, stopping and overtaking sight distance
	6	Necessity of curves, horizontal and vertical curves including transition curves.
	7	Super elevation and methods of providing super elevation
	8	Sketch of typical cross-sections in cutting and filling on straight alignment and at a curve
3	9	Revision
	10	Basic considerations governing alignment for a road in plain and hilly area
	11	Highway location, marking of alignment on ground, setting out alignment of road
	12	Setting out bench marks, control pegs for embankment and cutting
4	13	Different types of road materials in use; soil, aggregate and binders
	14	Introduction to California Bearing Ratio, method of finding CBR value and its uses
	15	Aggregate : Source and types, important properties, strength, durability
	16	Revision
5	17	Binders: Common binders; bitumen, properties as per BIS specifications
	18	penetration, softening point, ductility and viscosity test of bitumen
	19	cut back and emulsion and their uses, Bitumen modifiers (CRMB & PMB)
	20	Road pavement: Flexible and rigid pavement, their merits and demerits
6	21	Typical cross-sections, functions of various components
	22	Sub-grade preparation
	23	Borrow pits, making profiles of embankment, construction of embankment,
	24	Compaction, preparation of subgrade, methods of checking camber, gradient
7	25	Alignment as per recommendations of IRC, equipment used for subgrade preparation
	26	Stabilization of subgrade. Types of stabilization mechanical stabilization
	27	Base Course
	28	Granular base course
8	29	Water Bound Macadam (WBM)
	30	Wet Mix Macadam (WMM)
	31	Bitumen Courses
	32	Bituminous Macadam
9	33	Dense Bituminous Macadam (DBM)
	34	Types of surfacing
	35	Rigid Pavements: construction as per IRC
	36	Introduction: Typical cross-sections showing all details of a typical hill road
10	37	Landslides: Causes, prevention and control measures, use of geogrids
	38	Drainage & Soil erosion
	39	Snow: Snow clearance, snow avalanches, frost
	40	Land Subsidence
	41	Necessity of road drainage work, cross drainage works
	42	Surface and subsurface drains and storm water drains
11	43	Common types of road failures of flexible pavements
	44	Maintenance of bituminous road
	45	Maintenance of concrete roads-filling cracks, repairing joints, shoulders
	46	Hot mix plant Tipper, tractors (wheel and crawler) scraper, bulldozer, dumpers, shovels, grader, roller, dragline
12	47	Asphalt mixer and tar boilers
	48	Road pavers & Finisher
13	49	Necessity of study of airport engineering, aviation transport scenario in India.
	50	Factors to be considered while selecting a site for an airport with respect to zoning laws
	51	Runway
	52	Taxiway, Apron & Hanger