FORMAT OF LESSON PLAN

Name of faculty	Sachin Sharma
Discipline	Civil engineering
Semester	5th
Subject	Highway Engineering

Week	Lecture	Торіс	Practical	Practical
	Dav	·	Dav	Торіс
1st	1st	Introduction	1st	Determination of penetration value of bitumen
	2nd	Importance of Highway engineering		
	2rd			
	4+h	IPC classification of roads		
	4U1	Classery of terms used in read and matrics and their importance.		
ا م در	300 1 ct	Biossary of terms used in road geo-metrics and their importance.	2	Determination of softening point of hitumen
zna	15t 2	Right of way, formation which, road margin, road shoulder, carnage way,	200	Determination of softening point of bitumen
	2nd	side slopes, kerbs, formation levels, camper and gradientia		
	3rd	Average running speed, stopping and passing sight distance		
	4th	Necessity of curves, horizontal and vertical curves including transition curves		
	5th	Super elevation and methods of providing super elevation ²		
3rd	1st	Sketch of typical cross-sections in cutting and filling on straight alignment and at a curve	3rd	Determination of ductility of bitumen
	2nd	Topographic map, reading the data given on a topographic map		
	3rd	Basic considerations governing alignment for a road in plain and hilly area [®]		
	4th	Highway location; marking of alignment		
	5th	Different types of road materials in use; soil, aggregate, binders – bitumen		
4th	1st	cutback, Emulsion and Modified Bitumen (CRMB, PMB)	4th	Determination of impact value of the road aggregate
	2nd	Binders: Common binders; bitumen, properties as per BIS specifications,		
	3rd	penetration, softening point, ductility and viscosity test of bitumen,		
	4th	procedures and significance, cut back and emulsion and their uses, Bitumen modifiers		
5th	1st	do	5th	Determination of abrasion value of road aggregate
	2nd	Road pavement: Flexible and rigid pavement, their merits		55 5
	3rd	demerits, typical cross-sections, functions of various components		
	4th	Introduction to California Bearing Ratio		
	5th	method of finding CBR value and its significance		
6th	1ct	Aggregate : Source and types important properties strength durability?	6th	Determination of the California bearing ratio (CBP) for the
oui	2nd	Sub-grade preparation: Setting out alignment of road	0011	sub-grade soil
	2rd	satting out hands marks, control, nors for ombankmont and sutting		Sub-grade Soli
	31U 44b	setting out bench marks, control pegs for embankment and cutting		
	4th	borrow pits, making promies of embankment, construction of embankment, compaction		
/tn	IST	preparation of subgrade, methods of checking camber, gradient and alignment	/tn	visit to Hot mix plant
	2nd	equipment used for subgrade preparation. Stabilization of subgrade.		
	3rd	Types of stabilization mechanical stabilization, lime stabilization, cement stabilization, etc		
	4th	Introduction to Sub Base Course and Base Course: (i) Water Bound Macadam (WBM)		
8th	1st	(ii) Wet Mix Macadam (WMM) Bitumen Courses: (i) Bituminous Macadam 🛙	8th	Mixing and spraying equipment
	2nd	(ii) Dense Bituminous Macadam (DBM) *Methods of construction as per MORT&H		
	3rd	Types of surfacing Prime coat and tack coat ii) Surface dressing with seal coat 🛙		
	4th	 iii) Open graded premix carpet iv) Mix seal surfacing v) Semi dense bituminous concrete 		
	5th	vi) Bituminous Concrete/Asphaltic concrete vii) Mastic Asphalt [®]		
9th	1st	Methods of constructions as per MORT&H specifications and quality control	9th	visit to Ready Mix Concrete plant.
	2nd	Rigid Pavements: Construction of concrete roads as per IRC specifications: Form work layi		
	3rd	mixing and placing the concrete, compacting and finishing, curing, joints in concrete pavem		
	4th	Introduction: Typical cross-sections showing all details of a typical hill road,		
10th	1st	partly in cutting and partly in filling Landslides: Causes, 🛙	10th	Visit to highway construction site for
	2nd	prevention and control measures, use of geogrids, geoflexiles, geo-synthetics		demonstration of operation of:
	3rd	Drainage ,Soil erosion ,Snow clearance, snow avalanches, frost , Land Subsidence		Tipper, tractors (wheel and crawler), scraper, bulldozer
	4th	Necessity of road drainage work, cross drainage works		roller, dragline, road pavers, JCB etc.
	5th	Surface and subsurface drains and storm water drains. Location, spacing		, , , , ,
11th	1st	typical details of side drains, side ditches for surface drainage. Intercepting drains.	11th	Determination of softening point of bitumen
	2nd	pipe drains in hill roads, details of drains in cutting embankment. typical cross sections		<u>.</u>
	3rd	Common types of road failures of flexible pavements: Pot hole, rutting, alligator cracking		
	4th	upheaval - their causes and remedies (brief description)		
	5th	Maintenance of bituminous road such as seal-coat, natch-work and recarneting		
12th	1st	Maintenance of concrete roads-filling cracks, repairing joints, maintenance of shoulders	12th	Determination of penetration value of bitumen
	2nd	maintenance of traffic control devices. Tinner, tractors scraper, hulldozer, dumners, should		
	3rd	Road Construction Equipment Hot mix plant®		
	/th	Asnhalt mixer and tar boilers. Road pavers		
	4U1	Asphalt hikel and tal bollers Koad pavels		
12+h	Jui 1ct	Recessity of study of all port engineering, aviation transport scenario in India.	12+6	Determination of impact value of the read aggregate
1301	13L 2md	ractors to be considered while selecting a site for an airport with respect to zoning laws.	1501	Determination of impact value of the road aggregate
	2110	Introduction to Kunways, Taxiways and Apron		
	510	Revision/Discussion		
	4th	Kevision/Discussion		
14th	1st	Kevision/Discussion	14th	Determination of abrasion value of road aggregate
	2nd	Kevision/Discussion		
	3rd	Revision/Discussion		
	4th	Revision/Discussion		
	5th	Revision/Discussion		
15th	1st	Revision/Discussion	15th	Determination of the California bearing ratio (CBR) for the
	2nd	Revision/Discussion		sub-grade soil
	3rd	Revision/Discussion		
	4th	Revision/Discussion		