

DHABALESWAR INSTITUTE OF POLYTECHNIC

LESSON PLAN

Discipline:	Semester: 4 th	Name of the Teaching Faculty Tanmayee Sathi
Subject: TH-4	No. of days per week Class Allotted: 4	Semester from Dt. 14/02/23 to Dt. 23/05/23 No. of Weeks: 15
Week	Class Day	Theory / Practical Topics
1 st week	1 st class	1. <u>Introduction</u> 1.1 Importance of Highway transportation : importance organization like Indian roads congress, ministry of surface transport, central road research institute.
	2 nd class	1.2 Functions of Indian roads congress
	3 rd class	1.3 IRC classification of roads.
	4 th class	1.4 organization of state highway department.
2 nd week	1 st class	2. <u>Road Geometrics</u> 2.1 Glossary of terms used in geometric & their importance, right of way, formation width, road margin, Road shoulder, carriage way, side slopes, kerbs formation level, camber & gradient.
	2 nd class	2.2 Design and average running speed, stopping & passing sight distance
	3 rd class	2.3 Necessity of curve, horizontal & vertical curves including transition curves & super elevation methods of providing super-elevation.
	4 th class	

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3rd week	1st class	3. Road materials
	2nd class	3.1 Difference types of Road materials in use : soil, aggregates & binders
	3rd class	3.2 function of soil as highway sub-grade
	4th class	3.3 California Bearing Ratio : method of finding CBR valued in the labo. Ratony and at site & their significance.
4th week		3.4 Testing aggregates : Abrasion test, impact test, crushing strength test, water absorption test & soundness test.
		4- Road Pavements
5th week	1st class	4.1 Road pavement : flexible and rigid pavement, their merits & demerits typical cross-sections, functions of various components
	2nd class	flexible Pavements :
	3rd class	4.2 sub-grade preparation :
6th week	1st class	setting out alignment of road, setting out bench marks, control pags for embankment & cutting.
	2nd class	→ Borrow pits, making profile of embankment, construction of embankment, compaction, stabilization of sub grade, methods of checking camber, gradient and alignment as per recommendations of IRE. equipment used for subgrade preparation.

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7th week	3rd class	4.3 sub base course ; necessity of sub base, stabilized → sub base, purpose of stabilization (no design) types of stabilization • mechanical stabilization • Lime stabilization • cement stabilization • fly ash stabilization
	4th class	
	1st class	
	2nd class	
8th week	1st class	4.4 Base course ; preparation of base course, Brid soiling, stone soiling & metawing. → water bound macadam and wet- men macadam, Bituminous con- struction : Different types.
	2nd class	
	3rd class	
9th week	1st class	4.5 Surfacing ; • Surfacing dressing (i) Premium carpet & (ii) semi dense carpet • Bituminous concrete • Grouting
	2nd class	
	3rd class	
		4.6 rigid pavements : concept of concrete roads as per IRC specifications

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10 th week	1 st class	5- <u>Hill Roads</u> :
	2 nd class	5.1 introduction : Typical cross-section showing all details of typical hill road in cut, partly in cutting & partly in filling
	3 rd class	5.2 Breast walls, Retaining walls, different types of bends
	4 th class	6- <u>Road Drainage</u> :
11 th week	1 st class	6.1 necessity of road drainage work cross drainage works
	2 nd class	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 drain in hill roads, details on drain in cutting embankment, typical cross sections.
	3 rd class	
	4 th class	
12 th week	1 st class	7- <u>Road maintenance</u> :
	2 nd class	7.1 common types of road failures their causes and remedies 7.2 maintenance of bituminous road such as patch work & resurfacing
13 th week	1 st class	7.3 maintenance of concrete roads filling cracks, repairing joints.

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Week	Class Day	Theory / Practical Topics
14 th week	2 nd class	→ maintenance of shoulders (beam), main
	3 rd class	tenance of traffic control devices
		7.4 Basic concept of traffic study, traffic safety and traffic control signal.
		8 Construction equipments :-
15 th week	1 st class	preliminary ideas of the following
	2 nd class	Plant & equipment :
	3 rd class	8.1 Hot mixing plant
	4 th class	8.2 Tipper, tractors (wheel & crawler) scraper, bulldozer, dumpers
	1 st class	Shovels, graders, Roller dragline.
	2 nd class	8.3 Asphalt mixer and tar boilers
		8.4 Road pavers
		8.5 modern construction equipments for roads.