



RAAJDHANI ENGINEERING COLLEGE, BHUBANESWAR

LESSON PLAN

2023-2024

Discipline: Civil Engineering	Semester: 4 th ,	Name of the Faculty: Dr. Sanjay Kumar Behera
Subject: Highway Engineering	No. of Days/week: 05	Session: March 2024- Aug 2024

Week	Class Day	Theory/ Topics	
1st	1st	Importance of Highway transportation: Importance organizations like Indian roads congress, Ministry of Surface Transport, Central Road Research Institute. Functions of Indian Roads Congress	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	2nd	IRC classification of roads Organisation of state highway department	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	3rd	Glossary of terms used in geometric and their importance, right of way, formation width, road margin, road shoulder, carriage way, side slopes, kerbs, formation level, camber and gradient	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	Problem Practice	
	5th	Design and average running speed, stopping and passing sight distance	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
2nd	1st	Problem Practice	
	2nd	Necessity of curves, horizontal and vertical curves including transition curves and super-elevation, Methods of providing super-elevation	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	3rd	Problem Practice	
	4th	Problem Practice	
	5th	Unit-1	
3rd	1st	Difference types of road materials in use: soil, aggregates, and binders Function of soil as highway Subgrade	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	2nd	California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	3rd	California Bearing Ratio: methods of finding CBR valued in the laboratory and at site and their significance	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	Problem Practice	
	5th	Review & Doubt Clearing	
4th	1st	Quiz-1	
	2nd	Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test	https://www.youtube.com/playlist?list=PLE88643285BC70E0F

	3rd	Testing aggregates: Abrasion test, impact test, crushing strength test, water absorption test & soundness test	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	Unit Test- 2	
	5th	Road Pavement: Flexible and rigid pavement, their merits and demerits, typical cross sections, functions of various components	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
5th	1st	Flexible pavements: Sub-grade preparation: Setting out alignment of road, setting out benchmarks	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	2nd	Control pegs for embankment and cutting, borrow pits, making profile of embankment	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	3rd	Construction of embankment, compaction, stabilization, preparation of subgrade	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	Construction of embankment, compaction, stabilization, preparation of subgrade	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	5th	Methods of checking camber, gradient and alignment as per recommendations of IRC, equipment used for subgrade preparation	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
6th	1st	Unit Test-3	
	2nd	Sub base Course: Necessity of sub-base, stabilized sub-base, purpose of stabilization (node signs)	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	3rd	Types of stabilization <ul style="list-style-type: none"> ● Mechanicalstabilization ● Limestabilization 	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	<ul style="list-style-type: none"> ● Cementstabilization ● Flyashstabilization 	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	5th	Base Course: Preparation of base course, Brick soling, stone soling and metalling,	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
7th	1st	Water Bound Macadam and wet-mix Macadam, Bituminous constructions: Different types	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	2nd	Surfacing: Surface dressing <ul style="list-style-type: none"> (i) Pre-mix carpet and(ii)Semi dense carpet (ii) Bituminous (iii)Concrete Grouting 	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	3rd	Unit Test-4	
	4th	Rigid Pavements: Concept of concrete roads as per IRC specifications	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	5th	Introduction: Typical cross-sections showing all details of a typical hill road in cut, partly in cutting and partly in filling	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
8th	1st	Breast Walls, Retaining walls	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	2nd	Different types of bend	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	3rd	Necessity of road drainage work, cross drainage works, Surface and sub-surface drains and storm water drains.	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	Review & Discussion	

	5th	Quiz-2	
9th	1st	Necessity of road drainage work, cross drainage works, Surface and sub-surface drains and storm water drains.	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	2nd	Location, spacing and typical details of side drains	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	3rd	Side ditches for surface drainage	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	Intercepting drains, pipe drains in hill roads	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	5th	Details of drains in cutting embankment, typical cross-sections	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
10th	1st	Review and Discussion	
	2nd	UnitTest- 5	
	3rd	Common types of road failures–their causes and remedies	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	Common types of road failures–their causes and remedies	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	5th	Maintenance of bituminous road such as patch work and resurfacing	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
11th	1st	Maintenance of concrete roads filling cracks, repairing joints	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	2nd	Maintenance of shoulders (berm), maintenance of traffic control devices	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	3rd	Maintenance of shoulders (berm), maintenance of traffic control devices	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	Basic concept of traffic study, Traffic safety	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	5th	Traffic control signal	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
12th	1st	Quiz-3	
	2nd	Unit Test-6	
	3rd	Preliminary ideas of the following plant and equipment: Hot mixing plant	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	Tipper, tractors (wheel and crawler) scraper	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	5th	Review & Discussion	
13th	1st	graders, roller dragline	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	2nd	bulldozer, dumpers, shovels	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	3rd	graders, roller drag	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	Review & Discussion	
	5th	Asphalt mixer and tar boilers	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
14th	1st	Road pavers	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	2nd	Modern construction equipment for roads	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	3rd	Modern construction equipment for roads	https://www.youtube.com/playlist?list=PLE88643285BC70E0F
	4th	Review&Discussion	
	5th	Unit Test-7	

15th	1st	Quiz-4	
	2nd	Previous years Q&A Discussion	
	3rd	Doubt Clearing	
	4th	Previous years Q&A Discussion	
	5th	Doubt Clearing	