Lesson Plan

Name of Faculty Discipline

Virender Singh Dalal

Civil Engg.

Semester

6th

Subject

RAILWAYS, BRIDGES AND TUNNELS

Lesson Plan Duration :

15 Weeks (From January 2020 to April 2020)

Week	Theory		
	Lecture Day	Topic (including assignment/test)	
	1st	Introduction to Indian Railways	
1st			
	2nd	Railway surveys: Factors influencing the railways route	
	3rd	Railway surveys: Factors influencing the railways route	
	4th	brief description of various types of railway survey	
2nd	5th	Classification of permanent way describing its component parts	
	6th	Classification of permanent way describing its component parts	
	7th	Classification of permanent way describing its component parts	
	8th	Rail Gauge: Definition, types, practice in India	
	9th	Rail Gauge: Definition, types, practice in India	
[10th	Rails – types of rails	
3rd	11th	Rails – types of rails	
	12th	Rail Fastenings	
	13th	Rail joints, types of rail joints, fastenings for rails	
	14th	fish plates, bearing plates	
4th	15th	Sleepers: Functions of sleepers	
	16th	types of sleepers,	
5th	17th	types of sleepers,	
	18th	requirements of an ideal material for sleepers	
	19th	Ballast: Function of ballast,	
	20th	requirements of an ideal material for ballast	
6th	21st	Assignment 1	
	22nd	Sessional Exam+ revision	
	23rd 24th	Sessional Exam+ revision Sessional Exam+ revision	
7th	24tn	Crossings and signallings: Brief description regarding different types of	
	25th	crossings/signallings (Latest electronics operated signal devices)	
		Maintenance of track: Necessity, maintenance of track, inspection of soil, track	
	26th	and fixtures	
	27th	maintenance and boxing of ballast maintenance gauges, tools	
	28th	Earth work and drainage: Features of rail road, bed level, width of formation,	
8th	29th	sideslopes, drains, methods of construction, requirement of drainage system	
	30th	Station and yards: purpose and types of stations and yards	
	31st	Bridge – its function and component parts, difference between a bridge and a culvert	
	32nd	Bridge – its function and component parts, difference between a bridge and a culvert	

Week Lecture Day Topic (including assignment/test) 33rd Classification of Bridges 34th Classification of Bridges 35th Classification of Bridges 36th Classification of Bridges 37th Classification of Bridges 38th Revision 39th Bridge Foundations: Introduction to open foundation, pile foundation, well foundation 40th pile foundation, well foundation 41th Assignment 2 42nd Assignment 3 45th Piers-definition, parts; types -solid (masonry and RCC), open 42nd Abutments and wing walls - definition, types of abutments (straight and tee), 44th Abutments and wing walls, repaired, return and curved 48th Bridge bearings: Purpose of bearings. 50th<	T		Theory
9th 34th Classification of Bridges 35th Classification of Bridges 36th Classification of Bridges 37th Classification of Bridges 37th Classification of Bridges 38th Revision 39th Bridge Foundations: Introduction to open foundation, 40th pile foundation, well foundation 41st Assignment 2 42nd 2 nd Sessional Exam + revision 43rd 3 nd Sessional Exam + revision 44th 2 nd Sessional Exam + revision 45th Piers-definition, parts; types — solid (masonry and RCC), open 46th Abutments and wing walls – definition, types of abutments (straight and tee), 47th abutment with wing walls (straight, splayed, return and curved 48th Bridge bearings: Purpose of bearings, 49th types of bearings – fixed plate, rocker and roller. Elastomaric bearings. 50th Inspection of bridges 51st Routine maintenance 52nd Revision 53rd Definition and necessity of tunnels 54th Typical section of tunnels for a national highway and single and double broad gauge railway track 55th Ventilation – necessity and methods of ventilation, 56th Ventilation – necessity and methods of ventilation, 57th Drainage method of draining water in tunnels 58th Lighting of tunnels 59th Assignment 3	Week		Topic
35th Classification of Bridges 36th Classification of Bridges 37th Classification of Bridges 37th Classification of Bridges 37th 38th Revision 39th Bridge Foundations: Introduction to open foundation, 40th pile foundation, well foundation 41st Assignment 2 42nd 2nd Sessional Exam + revision 43rd 2nd Sessional Exam + revision 44th 2nd Sessional Exam + revision 45th Piers-definition, parts; types –solid (masonry and RCC), open 46th Abutments and wing walls – definition, types of abutments (straight and tee), 47th abutment with wing walls (straight, splayed, return and curved 48th Bridge bearings: Purpose of bearings, 49th types of bearings –fixed plate, rocker and roller Elastomarie bearings. 50th Inspection of bridges 51st Routine maintenance 52nd Revision 53rd Definition and necessity of tunnels 53rd Definition and necessity of tunnels 53th Typical section of tunnels for a national highway and single and double broad gauge railway track 55th Ventilation –necessity and methods of ventilation, 57th Drainage method of draining water in tunnels 58th Lighting of tunnels 59th Assignment 3	9th	33rd	Classification of Bridges
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40th pile foundation, well foundation		38th	Revision
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14th Typical section of tunnels for a national highway and single and double broad gauge railway track S5th Ventilation –necessity and methods of ventilation, S6th Ventilation –necessity and methods of ventilation, S7th Drainage method of draining water in tunnels S8th Lighting of tunnels S9th Assignment 3		52nd	Revision
14th 54th	14th	53rd	Definition and necessity of tunnels
55th Ventilation -necessity and methods of ventilation, 56th Ventilation -necessity and methods of ventilation, 57th Drainage method of draining water in tunnels 58th Lighting of tunnels 59th Assignment 3		54th	railway track
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15th		56th	
15th S9th Assignment 3	15th	57th	Drainage method of draining water in tunnels
59th Assignment 3		58th	Lighting of tunnels
60th Revision		59th	Assignment 3
		60th	Revision