

GOPALAN COLLEGE OF ENGINEERING AND MANAGEMENT

Department of civil Engineering

Academic Year: **2016-17**

Semester: **EVEN**

COURSE PLAN

Semester: **VI**

Subject Code& Name: **10CV63 & TRANSPORTATION ENGINEERING II**

Name of Subject Teacher: **ASIF**

Name of Subject Expert (Reviewer): **CHANDAN M R**

For the Period: From: 6-02-17 to 02-06-17

Details of Book to be referred:

Text Books	T1: Railway Engineering - Saxena and Arora, Dhanpat Rai & Sons, New Delhi T2: Indian Railway Track – M M Agarwal, Jaico Publications, Bombay T3: Airport Planning and Design – Khanna Arora and Jain, Nem Chand Bros, Roorkee T4: Docks and Tunnel Engineering – R Srinivasan, Charaotar Publishing House T5: Docks and Harbour Engineering – H P Oza and G H Oza Charaotar Publishing House T6: Surveying – B C Punmia, Laxmi Publications
Reference Books	R1: Railway Engineering – Mundrey, McGraw Hill Publications

Lecture NO	Topic Planned	Practical Applications & Brief objectives	Book referred with Pg No.	Planned Date	Executed Date	Deviation Reasons thereof	How Made Good / Reciprocate arrangement	Remarks by HOD
1.	Introduction to the subject			06-02-2017				
2.	UNIT 1 INTRODUCTION: RAILWAY ENGINEERING Role of railways in transportation	Objective: To study different Modes of Transport, gauges, various	T1: 1.1-1.4	06-02-2017				

3.	Selection of Routes, Permanent way and its requirements	cross section of permanent way	T1: 3.1-3.2 & 13.2-13.4	08-02-2017				
4.	Gauge and types, Typical cross section- single line B G track in cutting, embankment and electrified tracks	Application: Indian railways Manufacturing of rails	T1: 3.4-3.5	09-02-2017				
5.	Typical cross section- Double line B G track in cutting, embankment	OUTCOME:	T1: 3.5	10-02-2017				
6.	Electrified tracks, Coning of wheels and tilting of rails	Students will be able to know the Indian rail organization	T1: 3.5-3.6	13-02-2017				
7.	Rails-Functions-requirements		T1: 6.1-6.4	13-02-2017				
8.	Rails- length-defects-wear-		T1: 6.5-6.14	15-02-2017				
9.	Creep-welding-joints, creep of rails		T1: 7.1-8.7	16-02-2017				
10.	Unit Test				17-02-2017			
11.	UNIT 2 SLEEPERS AND BALLAST Functions, Requirements, Types	Objective: To study the different types of sleepers and ballast with their functional requirement and calculation of material for a unit length of track Application: Track fittings and fastening Hauling capacity of a track OUTCOME: Students will be able to calculate material	T1: 9.1-9.7	20-02-2017				
12.	Ballast: Function & requirement ,Types of ballast , size & selection		T1: 11.1-11.2	20-02-2017				
13.	Track fitting and fasteners- Dog spike Screw spike		T1: 10.1-10.3	22-02-2017				
14.	Pandrol clip Fish plates, Bearing plates		T1: 10.3-10.7 & 10.2	23-02-2017				
15.	Calculation of quantity of materials required for laying a track- examples		T1: 22.4	27-02-2017				
16.	Tractive resistance and hauling capacity with examples		T1: 5.1-5.3	27-02-2017				

17.	Unit Test	for a unit length of track		01-03-2017				
18.	UNIT 3 GEOMETRIC DESIGN Necessity, Gradient	Objective: To study the various geometrical aspects of a ideal railway track. To study safe speed on various criteria Application: Transition curves Grade compensation OUTCOME: Students will be able to calculate required cant and safe speed based on various criteria	T1: 15.1	02-03-2017				
19.	Types and Grade compensation		T1: 15.2	03-03-2017				
20.	Cant- Cant deficiency- negative cant		T1: 15.5	04-03-2017				
21.	Safe speed on curves		T1: 15.3-15.4	06-03-2017				
22.	Safe speed based on various criteria (cont.)		T1: 15.3-15.4	06-03-2017				
23.	Transition curve		T1: 15.6-15.8	08-03-2017				
24.	Problems on Cant deficiency		T1: 15.5	13-03-2017				
25.	Unit Test			13-03-2017				
26.	UNIT 5 INTRODUCTION: AIRPORT ENGINEERING Layout of an airport with component parts and functions	Objective: To study the various factors for the selection of an ideal airport and aircraft characteristics Application: Regional planning, Federal Aviation Administration OUTCOME: Students will be able to solve wind rose problems	T3:Pg 374-395	15-03-2017				
27.	Site selection for airport, Airport classification		T3:Pg 129-149	16-03-2017				
28.	Aircraft characteristic affecting the design and planning of airport		T3:Pg 109-119	17-03-2017				
29.	Runway orientation using wind rose		T3:Pg 164-173	20-03-2017				
30.	Problems on wind rose		T3:Pg 170-172	20-03-2017				
31.	Problems on wind rose		T3:Pg 166-168	22-03-2017				
32.	Unit Test			23-03-2017				
33.	UNIT 7 TUNNELS	Objective: Study of various	T4: Pg 213-217 & 257-	27-03-2017				

	Advantages and disadvantages, size and shape of tunnels	tunneling methods Study of tunnel ventilation	260						
34.	Surveying- Transferring centre line and gradient from surface to inside the tunnel working face, Weisbach triangle	Application: Transferring centre line and gradient from surface, Weisbach triangle OUTCOME: Able to understand Surveying- Transferring centre line and gradient from surface to inside the tunnel working face, Weisbach triangle	T4: Pg 229-217	30-03-2017					
35.	Surveying- Transferring centre line and gradient from surface to inside the tunnel working face, Weisbach triangle		T4: Pg 229-217	31-03-2017					
36.	Tunneling in rocks- methods		T4: Pg 321-333	01-04-2017					
37.	Tunneling methods in soils- Needle beam		T4: Pg 268-275	03-04-2017					
38.	Liner plate, Tunnel lining,		T4: Pg 282-285 & 364-377	03-04-2017					
39.	Tunnel ventilation, vertical shafts		T4: Pg 385-396	05-04-2017					
40.	Pilot tunneling, mucking and methods, Drilling and drilling pattern		T4: Pg 324-325 & 329-337	06-04-2017					
41.	Unit Test			07-04-2017					
42.	UNIT 8 HARBOURS Harbour classification, Layout with components		Objective: Study of various types of harbours and docks Application: Location and design of the harbour. OUTCOME: Able to understand	T4: Pg 4-14	10-04-2017				
43.	Natural phenomenon affecting the design of harbours- wind and wave			T4: Pg 44-53	10-04-2017				
44.	Tide, currents	T4: Pg 33-44		12-04-2017					
45.	Breakwater-Types-	T4: Pg 60-102		13-04-2017					
46.	Wharf and Quays, Jetties and piers	T4: Pg 152-164		20-04-2017					

47.	Dry docks and Wet docks Slipways	various components of a harbor and a dock	T4: Pg 114- 119 & Pg 132-133	21-04-2017				
48.	Navigational aids- warehouse		T4: Pg 180- 182	24-04-2017				
49.	Transit-shed		T4: Pg 176- 180	24-04-2017				
50.	Unit Test			26-04-2017				
51.	UNIT 4 POINTS AND CROSSING Components of a turnout, Details of points and crossings	Objective: Study of Components of a turnout, Details of points and crossings Application: Study of Signaling and level crossings Design of turnouts Track defects and maintenance OUTCOME: Able to understand various of track junctions- Diamond and crossover, Station and types	T1: 16.1-16.4 & 16.6	27-04-2017				
52.	Design of turnouts with examples		T1: 16.7-16.8	28-04-2017				
53.	Types of switches, crossings		T1: 16.5-16.6	03-05-2017				
54.	Types of track junctions- Diamond and crossover, Station and types		T1: 17.1-17.3	04-05-2017				
55.	Types of yards, Signaling- Objects and types		T1: 18.8 & 20.1-20.13	05-05-2017				
56.	station and yard equipment- Buffer stop,		T1: 19.1- 19.16	06-05-2017				
57.	level crossing Track defects and maintenance		T1: 18.9&24.1	08-05-2017				
58.	Unit Test			08-05-2017				
59.	UNIT 6 RUNWAY Basic runway length- Corrections and examples	Objective: Study of Runway geometrics, Taxiway, exit way Application: Design of , Basic runway ,taxiway, exit taxiway	T3: Pg 173- 186	15-05-2017				
60.	Runway geometrics, Taxiway- Factors affecting the layout		T3: Pg 187- 193 &	15-05-2017				
61.	Geometrics of Taxiway, Design of exit taxiway		T3: Pg 231- 237& 238- 242	17-05-2017				

62.	Examples	OUTCOME: Able to understand various runway geometrics	T3: Pg 237- 238&242-244	18-05-2017				
63.	Visual aids- Airport marking Visual aids- Lighting, Instrumental landing system.		T3: Pg 406- 414 T3: Pg 414-422 & 432-437	19-05-2017				

Prepared By: _____
(Faculty)
Date & Sign _____

Reviewed by: _____
(Sub. expert)
Date & Sign _____

Approved by: _____
(HOD)
Date & Sign _____

Approved by: _____
(Principal/ Acad. Co)
Date & Sign _____