PARALA MAHARAJA ENGINEERING COLLEGE, BERHAMPUR

LESSON PLAN

Semester- 6th sem

Subject(PCI6J001)- Advance transportation engineering(4)

Branch/Course- Civil engineering

Lecture No	Module	Topics to be delivered
1	**I**	History of Indian railways, Components of railway track
2	**I**	Types of gauge, Problems of multi gauge system
3	**I**	Coning of wheels, Alignments and survey
4	**I**	Permanent way track components
5	**I**	Type of rail sections, Creep of rails, Wear and failure in rails
6	**I**	Functions, Requirements and Types of ballasts
7	**I**	Functions, Requirements and Types of sleepers
8	**I**	Various train resistances
9	**II**	Necessity of geometric design of a railway track, Gradients and grade compensation
10	**II**	Various speeds on a railway track, Radius or degree of curve
11	**II**	Super elevation
12	**II**	Limits & cant deficiency, Negative super elevation
13	**II**	Types of curves, Horizontal and vertical curves
14	**II**	Transition curve
15	**II**	Points and crossings
16	**II**	Design of simple turn-out
17	**II**	Signalling and interlocking
18	**III**	Airport site selection, Air craft characteristics
19	**III**	Various surface of an airport, Wind rose diagram
20	**III**	Geometric elements of run way
21	**III**	Geometric elements of taxiway
22	**III**	Holding apron, Parking configuration
23	**III**	Terminal building
24	**III**	Visual aids, airport marking
25	**III**	Lighting
26	**III**	Air traffic control
27	**IV**	Introduction to Harbour Engineering, Classification of Harbour basin
28	**IV**	Types of break water
29	**IV**	General layout of harbours, Ports
30	**IV**	Introduction to Docks
31	**IV**	Different components of docks

Course Outcomes (CO's):

Course Outcome	Descriptions (At the end of the semester students will be able to)
CO1	Define the various components of permanent way, airport and harbor.
CO2	Compare the various types of sleeper, ballast and rails.
CO3	Apply the principles in the geometric design of railway track, run way and taxi way of airport.
CO4	Explain the various types of signals and interlocking used in Indian railways.