

**ACADEMIC LESSON PLAN FOR WINTER 2023 DEPT. OF
CIVIL ENGG RKCAT- POLYTECHNIC BALASORE NAME OF THE
FACULTY – Er. BISWA RANJAN PATRA
RAILWAY & BRIDGE ENGINEERING**

Course code- Th-3
Theory – 4 P/W
Total period – 60 P/Sem
Examination – 3hrs
Semester - 5th Civil

Class test- 20
End semester exam-80
Total mark- 100
Start From- 15th Sept.

WEEK	CLASS	TOPIC
1 st	1 st	Section-A: RAILWAYS Introduction :Railway terminology
	2 nd	Advantages of railways Classification of Indian Railways
	3 rd	Permanent way Definition
	4 th	components of a permanent way
2 nd	1 st	Concept of gauge
	2 nd	different gauges prevalent in India
	3 rd	suitability of the gauges under different conditions
	4 th	Track materials Rails ,Functions and requirement of rails
3 rd	1 st	Types of rail sections , length of rails
	2 nd	Rail joints – types, requirement of an ideal joint
	3 rd	Purpose of welding of rails & its advantages
	4 th	Creep definition, cause & prevention

4 th	1 st	Sleepers - Definition, function & requirements of sleepers Classification of sleepers ,Advantages & disadvantages of different types of sleepers
	2 nd	Ballast -Functions & requirements of ballast , Materials for ballast
	3 rd	Fixtures for Broad gauge, Connection of rails to rail-fishplate, fish bolts Connection of rails to sleepers
	4 th	Geometric for Broad gauge Typical cross – sections of single broad gauge railway track in cutting & embankment
5 th	1 st	Typical cross – sections of double broad gauge railway track in cutting & embankment
	2 nd	Permanent & temporary land width
	3 rd	Gradients for drainage
	4 th	Super elevation – necessity & limiting valued
6 th	1 st	Numerical Problem
	2 nd	Numerical Problem
	3 rd	Points and crossings
	4 th	Definition, necessity of Points and crossings
7 th	1 st	Types of points & crossings with tie diagrams
	2 nd	Revision
	3 rd	Revision
	4 th	Previous Year Question Discussion

WEEK	CLASS	TOPIC
1 st	1 st	Laying & maintenance of track
	2 nd	Methods of Laying & maintenance of track
	3 rd	Duties of a permanent way inspector
	4 th	Section – B: BRIDGES Introduction to bridges Definitions, Components of a bridge
2 nd	1 st	Classification of bridges
	2 nd	Requirements of an ideal bridge
	3 rd	Bridge site investigation, hydrology & planning
	4 th	Selection of bridge site, Alignment
3 rd	1 st	Determination of Flood Discharge
	2 nd	Waterway & economic span
	3 rd	Afflux, clearance & free board
	4 th	Bridge foundation
4 th	1 st	Scour depth minimum depth of foundation
	2 nd	Types of bridge foundations
	3 rd	spread foundation, pile foundation
	4 th	Well foundation
5 th	1 st	sinking of wells, caisson foundation
	2 nd	Coffer dams
	3 rd	Bridge substructure and approaches
	4 th	Types of piers

6 th	1 st	Types of abutments
	2 nd	Types of wing walls
	3 rd	Approaches
	4 th	Culvert & Cause ways
7 th	1 st	Types of culvers – brief description
	2 nd	Types of causeways – brief description
	3 rd	Revision and previous year question discussion
	4 th	Revision and previous year question discussion