

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF  
ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN  
Session-2023-2024

Discipline: Civil Engg. Semester: 5th

Subject: Railway & Bridge Engineering

Name of the Teaching Faculty: Bixtamaditya Bagh

Subject: Railway & Bridge Engineering No. of Days/per week class allotted 04

Semester From Date : 01.08.2023 To Date : 30.11.2023 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
1	1 <sup>st</sup>	Introduction Railway terminology
	2 <sup>nd</sup>	Advantages of railways classification of Indian Railway
	3 <sup>rd</sup>	Permanent way Definition
	4 <sup>th</sup>	components of a permanent way
2	1 <sup>st</sup>	concept of gauge
	2 <sup>nd</sup>	different gauges prevalent in India
	3 <sup>rd</sup>	suitability of these gauges under different conditions
	4 <sup>th</sup>	Track materials Rails, Function of rails requirement of rails
3	1 <sup>st</sup>	Types of rail sections, length of rails
	2 <sup>nd</sup>	Rail joints. types, requirement of an ideal joint
	3 <sup>rd</sup>	purpose of welding of rails & its advantages
	4 <sup>th</sup>	Creep. definition, cause & prevention

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Signature of the Faculty

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Semester From Date : 01.08.2022 To Date : 20.11.2023 No. of Weeks : 15

Week	Class Day	Theory / Practical Topics
4	1 <sup>st</sup>	Sleepers Definition, function requirement of sleepers
	2 <sup>nd</sup>	Classification of sleepers
	3 <sup>rd</sup>	Advantages & disadvantages of different types of sleepers
	4 <sup>th</sup>	Ballast, Function & requirements of ballast
5	1 <sup>st</sup>	Materials for ballast Fixtures for B.G, connection of rail to rail fishplate, fish bolts, connection of rails to sleepers
	2 <sup>nd</sup>	Geometric Broad Gauge Typical cross-section of single & double broad gauge railway track in cutting and embankment
	3 <sup>rd</sup>	Typical cross-section of single & double broad gauge railway track in cutting and embankment
	4 <sup>th</sup>	permanent & temporary land width
6	1 <sup>st</sup>	permanent & temporary land width
	2 <sup>nd</sup>	Gradients for drainage
	3 <sup>rd</sup>	Gradients for drainage
	4 <sup>th</sup>	Super elevation

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Week	Class Day	Theory /Practical Topics
7	1 <sup>st</sup>	necessity of superelevation
	2 <sup>nd</sup>	limited value of superelevation
	3 <sup>rd</sup>	limited value of superelevation
	4 <sup>th</sup>	Introduction to bridges Definitions, Components of a bridge
8	1 <sup>st</sup>	classification of bridges Requirements of an ideal bridge
	2 <sup>nd</sup>	Bridge site investigation, hydrology & planning selection of bridge site
	3 <sup>rd</sup>	Alignment
	4 <sup>th</sup>	Determination of flood discharge
9	1 <sup>st</sup>	Waterway & economic span
	2 <sup>nd</sup>	Abutment, clearance & tree board
	3 <sup>rd</sup>	Point and crossing Definition, necessity of points and crossing
	4 <sup>th</sup>	Types of points

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Semester From Date : 01.08.2023 To Date : 30.11.2023 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
10	1 <sup>st</sup>	Types of crossing with tie diagrams
	2 <sup>nd</sup>	Types of crossing with tie diagram
	3 <sup>rd</sup>	Laying and maintenance of track Introduction
	4 <sup>th</sup>	Methods of laying
11	1 <sup>st</sup>	maintenance of track
	2 <sup>nd</sup>	Duties of a permanent way inspector
	3 <sup>rd</sup>	Bridge foundation scour depth minimum depth of foundation
	4 <sup>th</sup>	scour depth minimum depth of foundation
12	1 <sup>st</sup>	Types of bridge foundations - spread foundation
	2 <sup>nd</sup>	pile foundation
	3 <sup>rd</sup>	well foundation
	4 <sup>th</sup>	sinking of wells.

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Week	Class Day	Theory / Practical Topics
13	1st	Caission foundation
	2nd	caission foundation cobbert dam
	3rd	Bridge substructure and approaches Types of piers
	4th	Types of abutments
14	1st	Types of wing walls
	2nd	Approaches
	3rd	Approaches
	4th	Culvert & Cause ways Introduction
15	1st	Types of culverts brief description
	2nd	Types of culvert brief description
	3rd	Types of causeways brief description
	4th	Types of causeways brief description

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