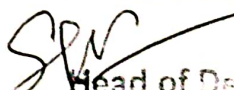


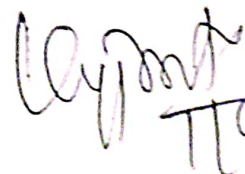
# LESSON PLAN OF 5<sup>TH</sup> SEMESTER CIVIL ENGINEERING

Discipline :- CIVIL	Semester :- 5 <sup>th</sup>	Name of the Teaching Faculty :- SUMEET PATNAIK
Subject Title RAILWAY & BRIDGE ENGINEERING	No of Days/ per Week Class Allotted :- 04	Semester From :- 1. 09. 2020 To :- (19.3.2021) No of Weeks :- 16
Week	Class Day	Theory/ Practical Topics
1 <sup>st</sup>	1 <sup>st</sup>	<b>1.0 Introduction</b>
	2 <sup>nd</sup>	1.1 Railway terminology
	3 <sup>rd</sup>	1.2 Advantages of railways
	4 <sup>th</sup>	1.3 Classification of Indian Railways
2 <sup>nd</sup>	1 <sup>st</sup>	<b>Permanent way</b>
	2 <sup>nd</sup>	2.1 Definition and components of a permanent way
	3 <sup>rd</sup>	2.2 Concept of gauge, different gauges prevalent in India, suitability of these gauges
	4 <sup>th</sup>	
3 <sup>rd</sup>	1 <sup>st</sup>	<b>3.0 Track materials</b>
	2 <sup>nd</sup>	3.1 Rails
	3 <sup>rd</sup>	3.1.1 Functions and requirement of rails
	4 <sup>th</sup>	3.1.2 Types of rail sections, length of rails
4 <sup>th</sup>	1 <sup>st</sup>	3.1.3 Rail joints – types, requirement of an ideal joint
	2 <sup>nd</sup>	3.1.4 Purpose of welding of rails & its advantages
	3 <sup>rd</sup>	3.1.5 Creep- definition, cause & prevention
	4 <sup>th</sup>	3.2 Sleepers
5 <sup>th</sup>	1 <sup>st</sup>	3.2.1 Definition, function & requirements of sleepers
	2 <sup>nd</sup>	3.2.2 Classification of sleepers
	3 <sup>rd</sup>	3.2.3 Advantages & disadvantages of different types of sleepers
	4 <sup>th</sup>	3.3 Ballast
6 <sup>th</sup>	1 <sup>st</sup>	3.3.1 Functions & requirements of ballast
	2 <sup>nd</sup>	3.3.2 Materials for ballast
	3 <sup>rd</sup>	3.4 Fixtures for Broad gauge
	4 <sup>th</sup>	3.4.1 Connection of rails to rail-fishplate, fish bolts
7 <sup>th</sup>	1 <sup>st</sup>	3.4.2 Connection of rails to sleepers
	2 <sup>nd</sup>	4.1 Typical cross – sections of single & double broad gauge railway track cutting and embankment
	3 <sup>rd</sup>	
	4 <sup>th</sup>	
8 <sup>th</sup>	1 <sup>st</sup>	4.2 Permanent & temporary land width
	2 <sup>nd</sup>	
	3 <sup>rd</sup>	4.3 Gradients for drainage
	4 <sup>th</sup>	

7 <sup>th</sup>	1 <sup>st</sup>	4.4 Super elevation – necessity & limiting valued
	2 <sup>nd</sup>	
	3 <sup>rd</sup>	
	4 <sup>th</sup>	
8 <sup>th</sup>	1 <sup>st</sup>	<b>Points and crossings</b> 5.1 Definition, necessity of Points and crossings
	2 <sup>nd</sup>	5.2 Types of points & crossings with tie diagrams
	3 <sup>rd</sup>	
	4 <sup>th</sup>	
9 <sup>th</sup>	1 <sup>st</sup>	<b>Laying &amp; maintenance of track</b> 6.1 Methods of Laying & maintenance of track
	2 <sup>nd</sup>	6.2 Duties of a permanent way inspector
	3 <sup>rd</sup>	
	4 <sup>th</sup>	
10 <sup>th</sup>	1 <sup>st</sup>	<b>Section – B: BRIDGES</b> <b>Introduction to bridges</b> 1.1 Definitions 1.2 Components of a bridge
	2 <sup>nd</sup>	1.3 Classification of bridges 1.4 Requirements of an ideal bridge
	3 <sup>rd</sup>	<b>Bridge site investigation, hydrology &amp; planning</b> 2.1 Selection of bridge site, Alignment,
	4 <sup>th</sup>	2.2 Determination of Flood Discharge
11 <sup>th</sup>	1 <sup>st</sup>	2.3 Waterway & economic span
	2 <sup>nd</sup>	2.4 Afflux, clearance & free board
	3 <sup>rd</sup>	<b>Bridge foundation</b>
	4 <sup>th</sup>	3.1 Scour depth minimum depth of foundation
12 <sup>th</sup>	1 <sup>st</sup>	3.2 Types of bridge foundations – spread foundation, pile foundation- w foundation – sinking of wells, caission foundation
	2 <sup>nd</sup>	
	3 <sup>rd</sup>	
	4 <sup>th</sup>	
13 <sup>th</sup>	1 <sup>st</sup>	3.3 Cofferdams
	2 <sup>nd</sup>	
	3 <sup>rd</sup>	<b>Bridge substructure and approaches</b>
	4 <sup>th</sup>	4.1 Types of piers
14 <sup>th</sup>	1 <sup>st</sup>	4.2 Types of abutments
	2 <sup>nd</sup>	4.3 Types of wing walls
	3 <sup>rd</sup>	4.4 Approaches
	4 <sup>th</sup>	<b>Culvert &amp; Cause ways</b>
15 <sup>th</sup>	1 <sup>st</sup>	5.1 Types of culvers – brief description
	2 <sup>nd</sup>	
	3 <sup>rd</sup>	5.2 Types of causeways – brief description
	4 <sup>th</sup>	
16 <sup>th</sup>	1 <sup>st</sup>	<b>DOUBT CLEARING CLASS AND REVISION</b>
	2 <sup>nd</sup>	
	3 <sup>rd</sup>	
	4 <sup>th</sup>	

  
 Head of Dept.  
 Civil Engg.  
 GF, Nabarangpur

Sumed Palni  
 1/9/20

  
 11/9/20