

**Department of Civil Engineering,  
Govt. Polytechnic for Women Rehan  
Distt. – Kangra (H.P.) - 176022**



**LESSON PLAN**

Program Name	Civil Engineering
Subject Name	Railways Bridges and Tunnels
Subject Code	
Semester	6 <sup>th</sup>
Subject Teacher Name	Amit Thakur

**Evaluation Scheme**

Sr. No.	Subject Name	Study scheme (Hrs/Week)		Marks in Evaluation Scheme					
				Internal Assessment			External Assessment		
				Th	DCS	Th	Pr	Total	Th
1.	Railways Bridges and Tunnels	4	-	50	-	50	50	-	100
Reference Books		(i) Vaswani, NK "Railway Engineering", Roorkee Publishing House (ii) Rangwala, SC; "Railway Engineering" (iii) Deshpande, R; "Text Book of Railway Engineering." (iv) NL Arora, Amish Rehalia Text book on Railway Bridges and Tunnels							

**Course Outcomes (COs)**

CO – 1	To know the general Introduction about Railways, Bridges and Tunnel and their role
CO – 2	Know various Railway track materials, Bridges and Tunnel Materials, their properties and use
CO – 3	To understand the objectives of Railways Bridges and Tunnel in Transportation Engg.
CO – 4	To understand the components of Railways ,bridges Tunnel their factors ,types and their importance

**Teaching Plan**

	Name of Topic	Proposed Date	Actual Date	Remarks
PART-1: RAILWAYS	Introduction to Indian Railways	29/01/2024 30/01/2024		
	Railways surveys: Factors influencing the railways route	01/02/2024 02/02/2024		
	Brief description of various type of railway survey	05/02/2024 06/02/2024 08/02/2024		
	Classification of permanent way describing its component part	09/02/2024 12/02/2024		
	Rail Gauge; Definition, types, practice in India	13/02/2024 15/02/2024		

	Rail – types of rails	16/02/2024 19/02/2024		
	Rail Fastening: Rail joints, types of rail joints, fastening for rails, fish plates, bearing plates	20/02/2024 22/02/2024 23/02/2024		
	Sleepers: Functions of sleepers, types of sleepers, requirements of an ideal material of sleepers	26/02/2024 27/02/2024 29/02/2024		
	Ballast: Function of ballast, requirements of an ideal material of ballast	01/03/2024 04/03/2024		
	Crossing and signaling: Brief description regarding different types of crossing/signalling , Maintenance of track: Necessity, track fixtures; maintenance and boxing of ballast, maintenance gauges, tools. 11. Drains, methods of construction	05/03/2024 07/03/2024 11/02/2024		
	Class Test -1	12/03/2024		
PART-II: BRIDGES	Introduction Bridge–its function and component parts, difference between a bridge and a culvert	14/03/2024 15/03/2024		
	Classification of Bridges Their structural elements and suitability: According to life-permanent and temporary According to deck level–Deck, through and semi-through According to material–timber, masonry, steel, RCC, pre-stressed	18/03/2024 19/03/2024 21/03/2024		
	IRC classification	22/03/2024 26/03/2024		
	Bridge Foundations: Introduction to open foundation pile foundation, well foundation	28/03/2024 01/04/2024		
	Piers, Abutments and Wing walls, Piers–definition, parts; types–solid (masonry and RCC), open Abutment and wing walls–definition, types of abutment (straight and tee), abutment with wing walls (straight, splayed, return and curved)	02/04/2024 04/04/2024 05/04/2024		

	Bridge bearings Purpose of bearing; types of bearing—fixed plate, rocker and roller,	08/04/2024 09/04/2024 12/04/2024		
	Maintenance of Bridges Inspection of bridges Routine maintenance	16/04/2024 18/04/2024 19/04/2024		
PART-III: TUNNEL	Definition and necessity of tunnels	22/04/2024 23/04/2024		
	2 <sup>nd</sup> Class Test	25/04/2024		
	Typical section of tunnels for a national highway and single and double broad gauge railway track	26/04/2024 29/04/2024 30/04/2024 02/05/2024		
	Ventilation-necessity and methods of ventilation, by blowing, exhaust and combination of blowing and exhaust	03/05/2024 06/05/2024 07//05/2024 09/05/2024		
	Drainage method of draining water in tunnels	13/05/2024 14/05/2024		
	Lighting in tunnels & lining of tunnels.	16/05/2024 17/05/2024		

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## Assignments

Assignment No	Contents of Syllabus Covered	Proposed Date	Actual Date	Remarks
A-1	Unit-1	21/03/2024		
A-2	Unit-2	22/04/2024		
A-3	Unit-3	20/05/2024		

## House Test/Class Test

Name of test	Syllabus for Tests	Proposed Date	Actual Date	Remarks
Class Test -1	Unit-1	As per HPTSB Academic Schedule		
Class Test -2	Unit-2			
House Test - 1	Unit-1, Unit-2 and Unit-3			

  
Signature of Teacher

  
(Signature of HOD)

Approved  
Principal

27.1.24  
Govt. Polytechnic for Women  
Rehan Distt. Kangra (H.P.)