

LESSON PLAN

| Discipline: Civil engineering | | | Name of The Teaching Faculty: Lect-II- ANITA PRADHAN | | | | |
|--|------|------------|--|--|---|---|---|
| Subject: Railway and bridge Engineering (TH3) | | | Semester From Date: 02.07.2024 To Date 08.11.2024 | | | | |
| SEMESTER-5th | | | No. Of Weeks: 14 | | 4P/WEEK | | |
| No. of Days/week class allotted: 04 period per week (Mon, Wed, Thus & Sat-1 Period each) | | | | | TOTAL PERIOD-60 | | |
| MONTH | Week | DATE | DAYS | Topics to be covered | NO. OF PERIODS AVAILABLE | | |
| | | | | Introduction | 2 | | |
| JULY | 1st | 01-07-2024 | MON | 1.1 Railway terminology | 1 | | |
| | | | | 1.2 Advantages of railways | 1 | | |
| | | 03-07-2024 | WED | 1.3 Classification of Indian Railways | 5 | | |
| | | | | Permanent way | 1 | | |
| | | | 04-07-2024 | THUS | 2.1 Definition | 1 | |
| | | | 06-07-2024 | SAT | components of a permanent way | 1 | |
| | | 2nd | 08-07-2024 | MON | 2.2 Concept of gauge | 1 | |
| | | | | 10-07-2024 | WED | Different gauges prevalent in India | 1 |
| | | | | 11-07-2024 | THUS | Suitability of these gauges under different conditions | 1 |
| | | | | | Track materials | 10 | |
| | | | 13-07-2024 | SAT | 3.1 Rails | 1 | |
| | | 3rd | 15-07-2024 | MON | 3.1.1 Functions and requirement of rails | 1 | |
| | | | | | 3.1.2 Types of rail sections, length of rails | | |
| | | | | 18-07-2024 | THUS | 3.1.3 Rail joints – types, requirement of an ideal joint | 1 |
| | | | | | 3.1.4 Purpose of welding of rails & its advantages | | |
| | | | 20-07-2024 | SAT | 3.1.5 Creep- definition, cause & prevention | 1 | |
| | | 4th | 22-07-2024 | MON | 3.2 Sleepers | 1 | |
| | | | | 24-07-2024 | WED | 3.2.1 Definition, function & requirements of sleepers | 1 |
| | | | | 25-07-2024 | THUS | 3.2.2 Classification of sleepers | 1 |
| | | | | | | 3.2.3 Advantages & disadvantages of different types of sleepers | 1 |
| | | 27-07-2024 | SAT | 3.3 Ballast | 1 | | |
| | | | | 3.3.1 Functions & requirements of ballast | | | |
| | 5th | 29-07-2024 | MON | 3.3.2 Materials for ballast | 1 | | |
| | | | | 3.4 Fixtures for Broad gauge | | | |
| | | | 31-07-2024 | WED | 3.4.1 Connection of rails to rail-fishplate, fish bolts | 1 | |
| | | | | 3.4.2 Connection of rails to sleepers | | | |

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| | | | | Geometric for broad gauge | 10 | |
| AUG | 1st | 01-08-2024 | THUS | 4.1 Typical cross – sections of single & double broad gauge railway track in cutting | 1 | |
| | | 03-08-2024 | SAT | 4.1 Typical cross – sections of single & double broad gauge railway in embankment | 1 | |
| | 2nd | 05-08-2024 | MON | 4.2 Permanent & temporary land width | 1 | |
| | | 07-08-2024 | WED | 4.3 Gradients for drainage | 1 | |
| | | 08-08-2024 | THUS | 4.4 Super elevation | 1 | |
| | | 10-08-2024 | SAT | Necessity & limiting valued | 1 | |
| | 3rd | 12-08-2024 | MON | Numerical problems | 1 | |
| | | 14-08-2024 | WED | Numerical problems | 1 | |
| | | 17-08-2024 | SAT | Numerical problems | 1 | |
| | 4th | 21-08-2024 | WED | Class test | 1 | |
| | | | | Points and crossings | 4 | |
| | | 22-08-2024 | THUS | 5.1 Definition | 1 | |
| | | 24-08-2024 | SAT | Necessity of Points and crossings | 1 | |
| | 5th | 28-08-2024 | WED | 5.2 Types of points with tie diagrams | 1 | |
| | | 29-08-2024 | THUS | 5.2 Types of crossings with tie diagrams | 1 | |
| | | | | Laying & maintenance of track | 4 | |
| | | 31-08-2024 | SAT | 6.1 Methods of Laying & maintenance of track | 1 | |
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| | SEPT | 1st | 02-09-2024 | MON | 6.1 Methods of Laying & maintenance of track | 1 |
| | | | 04-09-2024 | WED | 6.2 Duties of a permanent way inspector | 1 |
| 05-09-2024 | | | THUS | 6.2 Duties of a permanent way inspector | 1 | |
| | | | | Section – B: BRIDGES | 2 | |
| | | | | Introduction to bridges | | |
| 2nd | | 09-09-2024 | MON | 1.1 Definitions | 1 | |
| | | | | 1.2 Components of a bridge | | |
| | | 11-09-2024 | WED | 1.3 Classification of bridges | 1 | |
| | | | | 1.4 Requirements of an ideal bridge | | |
| | | | | | Bridge site investigation, hydrology & planning | 5 |
| | | 12-09-2024 | THUS | 2.1 Selection of bridge site, Alignment, | 1 | |
| 05-09-2024 | | | 2.2 Determination of Flood Discharge | 1 | | |
| 14-09-2024 | | SAT | Numerical problems | 1 | | |
| 3rd | | 18-09-2024 | WED | 2.3 Waterway & economic span | 1 | |
| | | 19-09-2024 | THUS | 2.4 Afflux | 1 | |
| | | 21-09-2024 | SAT | Clearance & free board | 1 | |
| | | | | Bridge foundation | 8 | |
| 4th | | 23-09-2024 | MON | 3.1 Scour depth | 1 | |
| | | 25-09-2024 | WED | Minimum depth of foundation | 1 | |
| | | 26-09-2024 | THUS | 3.2 Types of bridge foundations | 1 | |
| | 28-09-2024 | SAT | Spread foundation | 1 | | |
| 5th | 30-09-2024 | MON | Pile foundation- well foundation | 1 | | |

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| OCT | 1st | 03-10-2024 | THUS | Sinking of wells, caission foundation | 1 | |
| | | 05-10-2024 | SAT | 3.3 Coffe dams | 1 | |
| | 2nd | 14-10-2024 | MON | Revision | 1 | |
| | | | | Bridge substructure and approaches | 5 | |
| | | 17-10-2024 | THUS | 4.1 Types of piers | 1 | |
| | | 19-10-2024 | SAT | 4.2 Types of abutments | 1 | |
| | | 21-10-2024 | MON | 4.3 Types of wing walls | 1 | |
| | 3rd | 23-10-2024 | WED | 4.4 Approaches | 1 | |
| | | 24-10-2024 | THUS | Revision | 1 | |
| | | | | Culvert & Cause ways | 5 | |
| | | 26-10-2024 | SAT | 5.1 Types of culvers – brief description | 1 | |
| | | 28-10-2024 | MON | 5.1 Types of culvers – brief description | 1 | |
| | 4th | 30-10-2024 | WED | 5.2 Types of causeways – brief description | 1 | |
| | | | | 5.2 Types of causeways – brief description | 1 | |
| | NOV | 1st | 02-11-2024 | SAT | 5.2 Types of causeways – brief description | 1 |
| | | 2nd | 04-11-2024 | MON | Revision | 1 |