**LESSON PLAN**

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| **Discipline:**Civil Engineering | **Semester:**Fifth (5th ) | **Name Of The Faculty:**Er. K.B.Sethy |
| **Subject:**Railway & Bridge Engineering | **No of days/ week class allotted:**four(4) | **Semester from date:** 01.07.2024 **to Date: 08** .11.2024**No of weeks: 15** |
| **WEEK** | **CLASS DAY** | **THEORY TOPICS** |
| **Section-A: RAILWAYS** |
| 1st | 1st | **CHAPTER -1 INTRODUCTION**Railway terminology ,Advantages of railways |
| 2nd | Classification of Indian Railways |
| 3rd | **Review** |
| 4th | **CHAPTER -2 PERMANENT WAY**Definition ,components of a permanent way |
| 5th  | Concept of gauge |
| 2nd | 1st | different gauges prevalent in India |
| 2nd | suitability of these gauges under different conditions |
| 3rd | Cont. |
| 4th | **Review** |
| 5th  | **CHAPTER -3: TRACK MATERIALS**Rails, Functions and requirement of rails,  |
| 3rd | 1st | ***Monthly Test- 1*** |
| 2nd |  Types of rail sections, length of rails |
| 3rd | Rail joints – types, requirement of an ideal joints |
| 4th | Purpose of welding of rails &  |
| 5th  | its advantages |
| 4th | 1st | Creep definition, cause & prevention  |
| 2nd | Definition, function & requirements of sleepers, Classification of sleepers |
| 3rd | Advantages & disadvantages of different types of sleepers,  |
| 4th | Ballast, Functions &  |
| 5th  | requirements of ballast |
| 5th | 1st |  Materials for ballast |
| 2nd | Fixtures for Broad gauge  |
| 3rd |  Connection of rails to rail-fishplate,  |
| 4th | fish bolts |
| 5th  | Connection of rails to sleepers |
|  |  |  |
| 6th | 1st | ***Monthly Test- 2*** |
| 2nd |  **Review** |
| 3rd |  **CHAPTER-04: GEOMETRIC FOR BROAD GAUGE**Typical cross – sections of single broad gauge railway track in cutting and embankment **.**  |
| 4th | Typical cross – sections of double broad gauge railway track in cutting and embankment |
| 5th  | Cont. |
| 7th | 1st | Permanent & temporary land width ,Gradients for drainage |
| 2nd | Super elevation – necessity & limiting valued |
| 3rd | **Review** |
| 4th | **CHAPTER -5 POINTS AND CROSSINGS**Definition**,** necessity of Points and crossings |
| 5th  | Cont. |
| 8th | 1st | Types of points & crossings with tie diagrams |
| 2nd | ***Possible question answer discussion*** |
| 3rd | **CHAPTER -6: LAYING & MAINTENANCE OF TRACK**Methods of Laying & maintenance of track |
| 4th | Details of a permanent way inspector |
| 5th  | Cont. |
| 9th | 1st | ***Monthly Test- 3*** |
| 2nd | **Review** |
| **Section-B BRIDGES** |
| 9th | 3rd | **CHAPTER -1 INTRODUCTIONS**Definitions, Components of a bridge |
| 4th | Classification of bridges |
|  | 5th  | Requirements of an ideal bridge |
| 10th | 1st | ***Possible question answer discussion*** |
| 2nd | **CHAPTER-02 BRIDGE SITE INVESTIGATION, HYDROLOGY & PLANNING**Selection of bridge site, |
| 3rd | Bridge alignments |
| 4th | Determination of flood discharge |
| 5th  | Waterway & economic span, Afflux |
| 11th | 1st | ***Monthly Test- 4*** |
| 2nd | clearance & free board |
| 3rd | **Review** |
| 4th | **CHAPTER-03 BRIDGE FOUNDATION**Scour depth minimum,  |
|  | 5th  | depth of foundation |
| 12th  | 1st | Types of bridge, foundationsspread foundation |
| 2nd | pile foundation- pile driving |
| 3rd | well foundation – sinking of wells |
| 4th | caisson foundation, Coffer dams |
| 5th  | **Review** |
| 13th | 1st | **CHAPTER-10;BRIDGE SUBSTRUCTURE AND APPROACHES**Types of abutments |
| 2nd | Types of piers, |
| 3rd | Types of wing walls, Approaches |
| 4th | **Review** |
| 5th  | **CHAPTER-11: CULVERT & CAUSE WAYS** Types of culvers - brief description |
| 14th | 1st | Cont. |
| 2nd | Types of causeways |
| 3rd | - brief description |
| 4th | Cont. |
| 5th  | **Review** |
| 15th | 1st | **Previous year question answer discussion(w-21)** |
| 2nd | **Previous year question answer discussion(w-21)** |
| 3rd | **Previous year question answer discussion(w-22)** |
| 4th | **Previous year question answer discussion(w-23)** |
| 5th  | **Previous year question answer discussion(w-23)** |

 **CHAPTER COVERED UPTO I.A-** Ch. 1,2,3,4 of Section A & Ch. 1,2 of Section B