**MAHAMAYA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCE,**

**NUAPADA**

**DEPARTMENT OF CIVIL ENGINEERING**

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| **Discipline: CIVIL Engineering**  | **Semester: 5th Semester**  |  **Name of the Teaching Faculty:** **ER. HIMANEE RATH**   |
| **Subject:** **R & B ENGG.**  | **No. of** **Days/week** **Class**  **Allotted:60**  |  **Semester from date: 15/09/2022 to date: 22 /12/2022** **No of weeks: 14**  |
| **Week**  | **Class Day**  | **Theory Topics**  |
|    1st  | 1st  | 1.0.Introduction 1.1 Railway terminology |
| 2nd  | 1.2 Advantages of railways 1.3 Classification of Indian Railways |
| 3rd  | 2. Permanent way 2.1 Definition |
| 4th  | components of a permanent way |
|      2nd  | 1st   | Concept of gauge |
| 2nd  | different gauges prevalent in India |
| 3rd   | suitability of these gauges under different |
| 4th  | 3.Track materials 3.1 Rails 3.1.1 Functions and requirement of rails |
|    3rd  | 1st  | 3.1.2 Types of rail sections , length of rails 3.1.3 Rail joints – types, requirement of an ideal joint |
| 2nd  | 3..1.4 Purpose of welding of rails & its advantages 3.1.5 Creep definition, cause & prevention |
| 3rd  | 3.2 Sleepers 3.2.1 Definition, function & requirements of sleepers 3.2.2 Classification of sleepers 3.2.3 Advantages & disadvantages of different types of sleepers |
| 4th  | 3.3 Ballast 3.3.1 Functions & requirements of ballast 3.3.2 Materials for ballast |
|     4th  | 1st  | 3.4 Fixtures for Broad gauge 3.4.1 Connection of rails to rail-fishplate, fish bolts 3.4.2 Connection of rails to sleepers |
| 2nd  | 4.Geometric for Broad gauge 4.1 Typical cross – sections of single |
| 3rd  | double broad gauge railway track in cutting |
| 4th  | embankment |
|    5th  | 1st  | 4.2 Permanent & temporary land width |
| 2nd  | Gradients for drainage |
| 3rd  | Super elevation – necessity & limiting valued |
| 4th  | Numerical problem |
|    6th  | 1st  | Numerical problem |
| 2nd  | Numerical problem |
| 3rd  | Numerical problem |
| 4th  | Problem solving |
|     7th  |  1st  | 5.0 Points and crossings |
| 2nd  | 5.1 Definition |
|  3rd  | necessity of Points and crossings |
|  4th  | 5.2 Types of points |
|     8th  | 1st  | & types of crossings with tie diagrams |
| 2nd  | 6.0 Laying & maintenance of track |
| 3rd  | 6.1 Methods of Laying |
| 4th  | maintenance of track |
|     9th  | 1st  | Details of a permanent way inspector |
| 2nd  | Section – B : BRIDGES 7.0 Introductions 7.1 Definitions 7.2 Components of a bridge |
| 3rd  | 7.3 Classification of bridges. 7.4 Requirements of an ideal bridge |
| 4th  | 8.Bridge Site investigation, hydrology & planning 8.1 Selection of bridge site |
|    10th  | 1st  | 8.2 Bridge alignments |
| 2nd  | 8.3 Determination of flood discharge |
| 3rd  | 8.4 Waterway & economic span |
| 4th  | 8.5 Afflux, clearance & free board 8.6 Collection of bridge design data & sub surface investigation |
|     11th  | 1st  | 9.Bridge foundation |
| 2nd  | 9.1 Scour depth minimum depth of foundation 9.2 Types of bridge |
| 3rd  | pile foundation-, pile driving, |
| 4th  | well foundation – sinking of wells caission foundation |
|    12th  | 1st  | foundations – spread foundation |
| 2nd  | 9.3 Coffer dams |
| 3rd  | 10.Bridge substructure and approaches 10.1 Types of piers |
| 4th  | 10.2 Types of abutments |
|     13th  | 1st  | 10.3 Types of wing walls |
| 2nd  | 10.4 Approaches |
|   3rd  | 11.0Permanent bridges 11.1 Masonry bridges |
| 4th  | 11.2 Steel bridges – classification with sketches |
|    14th  | 1st  | 11.3 Concrete bridges – classification, brief description with sketches  11.4 IRC bridge loading |
| 2nd  | 12.Culvert & cause ways 12.1 Types of culvers - brief description |
| 3rd  | 12.2 Types of causeways - brief description |
| 4th  | PREVIOUS YEAR QUESTION DISCUSSION |

 

Signature of faculty member counter signature of HOD