BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK

DEPARTMENT OF CIVIL ENGINEERING



LESSON PLAN

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| SUBJECT: RAILWAY & BRIDGE ENGINEERING (TH3) | ACCADEMIC SESSION: 2021-22 |
| FACULTY: MRS RASHMI REKHA RAY | SEMESTER: 5TH |
|  | SEC: B |

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| Sd/- |
| H O D (Civil Engg.) |

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| **Discipline: Civil Engineering** | **Semester:5TH** | | **Name of the teaching faculty:**  **RASHMI REKHA RAY** |
| **Subject:**  **Railway & Bridge Engineering** | **No. of Days/ per week class allotted: 04 period per week.**  **(Wed-2, Thu& Sat – 1 period each)** | | **Semester From Date: 01-10-2021 To Date: 08-01-2022**  **No. of weeks: 14 weeks** |
| **Week** | **Class Day** | **No of period available** | **Theory Topics** |
| 1st | 02/10/2021 | 1 | Introduction  1.1 Railway terminology  1.2 Advantages of railways |
| 2nd | 06/10/2021 | 2 | 1.3 Classification of Indian Railways.  2 Permanent way  2.1Definition and components of a permanent way |
| 07/10/2021 | 1 | 2.2 Concept of gauge, different gauges prevalent in India and suitability of these gauges under different  conditions. |
| 09/10/2021 | 1 | 3 Track materials  3.1 Rails  3.1.1 Function and requirement of rails |
| 3rd | 21/10/2021 | 1 | 3.1.2 Types of rail sections, length of rails. |
| 23/10/2021 | 1 | 3.1.3 Rail joints – types, requirement of an ideal joint. |
| 4th | 27/10/2021 | 2 | 3.1.4 Purpose of welding of rails & its advantage  3.1.5 Creep- definition, cause and prevention |
| 28/10/2021 | 1 | 3.2 Sleepers  3.2.1 Definition, function & requirements of sleepers  3.2.2 Classification of sleepers |
| 30/10/2021 | 1 | Monthly Class Test |
| 5th | 03/11/2021 | 2 | 3.2.3 Advantages & disadvantages of different types of sleeper  3.3 Ballast  3.3.1 Functions & requirements of ballast  3.3.2 Materials for ballast |
| 06/11/2021 | 1 | 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 |
| 6th | 10/11/2021 | 2 | 4 Geometric for broad gauge  4.1Typical cross sections of single & double broad gauge railway track in cutting and embankment  4.2 Permanent & temporary land width |
| 11/11/2021 | 1 | 4.3 Gradients for drainage |
| 13/11/2021 | 1 | 4.4 Super elevation –necessity & limiting valued. |
| 7TH | 17/11/2021 | 2 | Problems on super elevation  Section – B: BRIDGES  1 Introduction to bridges  1.1 Definitions  1.2 Components of a bridge |
| 18/11/2021 | 1 | 1.3 Classification of bridges  1.4 Requirements of an ideal bridge |
| 20/11/2021 | 1 | 2 Bridge site investigation, hydrology & planning |
| 8TH | 24/11/2021 | 2 | 2.1 Selection of bridge site, Alignment  2.2 Determination of Flood Discharge |
| 25/11/2021 | 1 | 2.3 Waterway & economic span |
| 27/11/2021 | 1 | Monthly Class Test |
| 9TH | 01/12/2021 | 2 | Internal Assessment |
| 02/12/2021 | 1 | Internal Assessment |
| 04/12/2021 | 1 | 2.4 Afflux, clearance & free board |
| 10TH | 08/12/2021 | 2 | 3 Bridge foundation  3.1 Scour depth minimum depth of foundation  3.2 Types of bridge foundations – spread foundation |
| 09/12/2021 | 1 | 3.2 pile foundation- well foundation – sinking of wells |
| 11/12/2021 | 1 | caisson foundation. |
| 11TH | 15/12/2021 | 2 | 3.3 Coffer dams  5 Points and crossings  5.1 Definition, necessity of Points and crossings  5.2 Types of points & crossings with tie diagrams |
| 16/12/2021 | 1 | 6 Laying & maintenance of track  6.1 Methods of Laying andMaintenance of track |
| 18/12/2021 | 1 | 6.2 Duties of a permanent way inspector  4 Bridge substructure and approaches  4.1 Types of pier  4.2 Types of abutment |
| 12TH | 22/12/2021 | 2 | 4.3 Types of wing wall  4.4 Approaches |
| 23/12/2021 | 1 | 5 Culvert & Cause ways  5.1 Types of culvers – brief description |
| 13TH | 29/12/2021 | 2 | 5.2 Types of causeways –brief description |
| 30/12/2021 | 1 | Monthly Class Test |
| 14TH | 05/01/2022 | 2 | Revision |
| 06/01/2022 | 1 | Revision |
| 08/01/2022 | 1 | Previous Year Question Discussion |