NAME OF THE FACULTY : G.F

**DISCIPLINE** : **CIVIL ENGG.**

**SEMESTER : 5TH**

**SUBJECT : RAILWAYS, BRIDGES & TUNNELS LESSON PLAN DURATION : 15 WEEKS**

\*\*WORK LOAD (LECTURE / PRACTICAL) PER WEEK(IN HOURS): LECTURES-05, PRACTICALS -

NIL

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| **WEEK** | **THEORY** |
| 1ST | 1STDAY | INTRODUCTION TO INDIAN RAILWAY |
| 2NDDAY | RAILWAY SURVEYS: FACTORS INFLUENCING THE RAILWAYS ROUTE, BRIEF DESCRIPTION OF VARIOUS TYPES OF RAILWAY SURVEY |
| 3RDDAY | CLASSIFICATION OF PERMANENT WAY DESCRIBING ITS COMPONENT PARTS |
| 4THDAY | RAIL GAUGE: DEFINITION, TYPES, PRACTICE IN INDIA |
| 5THDAY | RAILS – TYPES OF RAILS |
| 2ND | 1STDAY | REVISION AND DOUBTS |
| 2NDDAY | TEST |
| 3RDDAY | RAIL FASTENINGS: RAIL JOINTS, TYPES OF RAIL JOINTS |
| 4THDAY | FASTENINGS FOR RAILS, FISH PLATES, BEARING PLATES |
| 5THDAY | SLEEPERS: FUNCTIONS OF SLEEPERS, TYPES OF SLEEPERS |
| 3RD | 1STDAY | REQUIREMENTS OF AN IDEAL MATERIAL FOR SLEEPERS |
| 2NDDAY | REVISION AND DOUBTS |
| 3RDDAY | TEST |
| 4THDAY | BALLAST: FUNCTION OF BALLAST, REQUIREMENTS OF AN IDEAL MATERIAL FOR BALLAST |
| 5THDAY | CROSSINGS AND SIGNALLINGS: BRIEF DESCRIPTION REGARDING DIFFERENT TYPES OF CROSSINGS/SIGNALLINGS (LATEST ELECTRONICS OPERATED SIGNAL DEVICES ) |

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| 4TH | 1STDAY | MAINTENANCE OF TRACK: NECESSITY, MAINTENANCE OF TRACK, INSPECTION OF SOIL, TRACK AND FIXTURES |
| 2NDDAY | MAINTENANCE AND BOXING OF BALLAST MAINTENANCE GAUGES, TOOLS |
| 3RDDAY | EARTH WORK AN DRAINAGE: FEATURES OF RAIL ROAD, BED LEVEL, WIDTH OF FORMATION |
| 4THDAY | SIDE SLOPES, DRAINS, METHODS OF CONSTRUCTION, REQUIREMENT OF DRAINAGE SYSTEM |
| 5THDAY | REVISION AND DOUBTS |
| 5TH | 1STDAY | TEST |
| 2NDDAY | INTRODUCTION TO BRIDGES |
| 3RDDAY | BRIDGE – ITS FUNCTION AND COMPONENT PARTS, DIFFERENCE BETWEEN A BRIDGE AND A CULVERT |
| 4THDAY | CLASSIFICATION OF BRIDGES THEIR STRUCTURAL ELEMENTS AND SUITABILITY: ACCORDING TO LIFE-PERMANENT AND TEMPORARYACCORDING TO DECK LEVEL – DECK, THROUGH AND SEMI-THROUGH |
| 5THDAY | ACCORDING TO MATERIAL –TIMBER, MASONRY, STEEL, RCC, PRE-STRESSED ACCORDING TO STRUCTURAL FORM; -GRADE SEPERATORS-RAILWAY OVERBRIDGES (ROB), RAILWAY UNDERBRIDGE (RUB) |
| 6TH | 1STDAY | ARCH TYPE – OPEN SPANDREL AND FILLED SPANDREL BARREL AND RIB TYPE - SUSPENSION TYPE – UNSTIFFENED AND STIFFENED ANDTABLE (ITS DESCRIPTION WITH SKETCHES) |
| 2NDDAY | ACCORDING TO THE POSITION OF HIGHEST FLOOD LEVEL SUBMERSIBLE AND NON SUBMERSIBLE |
| 3RDDAY | IRC CLASSIFICATION |
| 4THDAY | REVISION AND DOUBTS |
| 5THDAY | TEST |
| 7TH | 1STDAY | BRIDGE FOUNDATIONS: INTRODUCTION TO OPEN FOUNDATION |
| 2NDDAY | PILE FOUNDATION, WELL FOUNDATION |
| 3RDDAY | PIERS, ABUTMENTS AND WINGWALLSPIERS-DEFINITION, PARTS; TYPES –SOLID (MASONRY AND RCC), OPEN |
| 4THDAY | ABUTMENTS AND WING WALLS – DEFINITION, TYPES OF ABUTMENTS (STRAIGHT AND TEE), ABUTMENT WITH WING WALLS (STRAIGHT, SPLAYED, RETURN AND CURVED) |

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|  | 5THDAY | LAUNCHING OF EQUIPMENT BRIDGES |
| 8TH | 1STDAY | REVISION AND DOUBTS |
| 2NDDAY | TEST |
| 3RDDAY | BRIDGE BEARINGS PURPOSE OF BEARINGS |
| 4THDAY | TYPES OF BEARINGS – FIXED PLATE, ROCKER AND ROLLER. |
| 5THDAY | MAINTENANCE OF BRIDGES |
| 9TH | 1STDAY | REVISION AND DOUBTS |
| 2NDDAY | REVISION AND DOUBTS |
| 3RDDAY | TEST |
| 4THDAY | INSPECTION OF STEEL AND EQUIPMENT BRIDGES |
| 5THDAY | ROUTINE MAINTENANCE |
| 10TH | 1STDAY | INTRODUCTION TO TUNNELS |
| 2NDDAY | DEFINITION AND NECESSITY OF TUNNELS |
| 3RDDAY | TYPICAL SECTION OF TUNNELS FOR A NATIONAL HIGHWAY |
| 4THDAY | TYPICAL SECTION FOR SINGLE AND DOUBLE BROAD GAUGE RAILWAY TRACK |
| 5THDAY | VENTILATION –NECESSITY |
| 11TH | 1STDAY | REVISION AND DOUBTS |
| 2NDDAY | REVISION AND DOUBTS |
| 3RDDAY | TEST |
| 4THDAY | METHODS OF VENTILATION BY BLOWING |
| 5THDAY | EXHAUST AND COMBINATION OF BLOWING AND EXHAUST |
| 12TH | 1STDAY | TEST |
| 2NDDAY | TEST |
| 3RDDAY | DRAINAGE METHOD OF DRAINING WATER IN TUNNELS |

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|  | 4THDAY | REVISION OF PILE FOUNDATION, WELL FOUNDATION |
| 5THDAY | REVISION OF ABUTMENTS AND WING WALLS – DEFINITION, TYPES OF ABUTMENTS (STRAIGHT AND TEE), ABUTMENT WITH WING WALLS(STRAIGHT, SPLAYED, RETURN AND CURVED) |
| 13TH | 1STDAY | LIGHTING OF TUNNELS |
| 2NDDAY | REVISION OF RAILWAY SURVEYS: FACTORS INFLUENCING THERAILWAYS ROUTE, BRIEF DESCRIPTION OF VARIOUS TYPES OF RAILWAY SURVEY |
| 3RDDAY | TEST |
| 4THDAY | REVISION OF CLASSIFICATION OF PERMANENT WAY DESCRIBING ITS COMPONENT PARTS |
| 5THDAY | TEST |
| 14TH | 1STDAY | REVISION OF RAIL GAUGE: DEFINITION, TYPES, PRACTICE IN INDIA |
| 2NDDAY | TEST |
| 3RDDAY | REVISION OF RAILS – TYPES OF RAILS |
| 4THDAY | REVISION OF RAIL FASTENINGS: RAIL JOINTS, TYPES OF RAIL JOINTS |
| 5THDAY | REVISION OF FASTENINGS FOR RAILS, FISH PLATES, BEARING PLATES |
| 15TH | 1STDAY | TEST |
| 2NDDAY | TEST |
| 3RDDAY | REVISION OF SLEEPERS: FUNCTIONS OF SLEEPERS, TYPES OF SLEEPERS |
| 4THDAY | REVISION OF CROSSINGS AND SIGNALLINGS: BRIEF DESCRIPTIONREGARDING DIFFERENT TYPES OF CROSSINGS/ SIGNALLINGS (LATEST ELECTRONICS OPERATED SIGNAL DEVICES ) |
| 5THDAY | REVISION AND DOUBTS |