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

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

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

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