

**DEMAND****PAVIATH INTEGRATED SOLUTION****CIVIL ENGG****CIVIL POLY****TRANSPORTATION ENGINEERING****Paviath ONLINE**

◆ CIVIL POLY ◆ II YEAR IV SEM ◆ CODE CEM42

**OBJECTIVES:**

- TO STUDY ABOUT THE IMPORTANCE OF THE ROADS, DEVELOPMENT OF ROADS, CLASSIFICATION OF ROADS.
- TO KNOW ABOUT HIGHWAY PAVEMENTS, GEOMETRICAL DESIGN, TRAFFIC CONTROLS, ROAD ARBORICULTURE AND HIGHWAY LIGHTING.
- TO STUDY ABOUT RAILWAY FIXTURES, TYPES OF STATIONS, SIGNALLING AND CONTROL OF MOVEMENT OF TRAINS.
- TO STUDY ABOUT MAINTENANCE OF TRACK AND RAPID TRANSPORT SYSTEM OF RAILWAYS.
- TO KNOW ABOUT BRIDGES, CLASSIFICATIONS AND ITS COMPONENTS.

**HIGHWAY ENGINEERING****1.1 INTRODUCTION**

GENERAL - DEVELOPMENT OF ROADS IN INDIA - MODES OF TRANSPORTATION - NAGPUR PLAN - RIBBON DEVELOPMENT - ADVANTAGES OF ROADS - IMPORTANCE OF ROADS IN INDIA - REQUIREMENTS OF AN IDEAL ROAD - INDIAN ROAD CONGRESS - OBJECTS OF HIGHWAY PLANNING - CLASSIFICATIONS OF HIGHWAYS.

**1.2 HIGHWAY PAVEMENTS****1.3 GEOMETRICAL DESIGN OF HIGHWAYS****1.4 TRAFFIC ENGINEERING****1.5 SUB GRADE SOIL****1.6 ROAD ARBORICULTURE AND LIGHTING****2.1 HIGHWAY ALIGNMENT AND SURVEYS**

DEFINITION - PRINCIPLES FOR IDEAL HIGHWAY ALIGNMENT - FACTORS AFFECTING HIGHWAY ALIGNMENT - SURVEYS - ENGINEERING SURVEYS - RECONNAISSANCE - PRELIMINARY AND LOCATION SURVEYS - PROJECT REPORT AND DRAWINGS - HIGHWAY RE-ALIGNMENT PROJECTS.

**2.2 ROAD MACHINERIES****2.3 LOW COST ROADS****2.4 BITUMINOUS ROADS****2.5 CEMENT CONCRETE ROADS**

GENERAL - ADVANTAGES AND DISADVANTAGES - METHODS OF CONSTRUCTION OF CEMENT CONCRETE ROADS WITH SKETCHES - CONSTRUCTION PROCEDURE FOR CONCRETE ROADS.

**2.6 HILL ROADS**

FACTORS CONSIDERED IN ALIGNMENT - FORMATION OF HILL ROADS - HAIR PIN BENDS - RETAINING AND BREAST WALLS.

**RAILWAY ENGINEERING****3.1 INTRODUCTION**

INTRODUCTION TO RAILWAYS - CLASSIFICATIONS OF INDIAN RAILWAYS - RAIL GAUGES - TYPES - UNIFORMITY IN GAUGES - LOADING GAUGE - CONSTRUCTION GAUGE.

**3.2 RAILS**

GENERAL - FUNCTIONS OF RAILS - REQUIREMENTS OF AN IDEAL RAIL - TYPES OF RAIL SECTIONS - LENGTH OF RAILS - WELDING OF RAILS - WEAR OF RAILS - CONING OF WHEELS - HOGGED RAILS - BENDING OF RAILS - CREEP OF RAILS - CAUSES AND PREVENTION OF CREEP.

**3.3 SLEEPERS AND BALLAST**

FUNCTIONS OF SLEEPERS - TYPES OF SLEEPERS - REQUIREMENTS OF SLEEPERS - MATERIALS FOR SLEEPERS - SLEEPER DENSITY - BALLAST - FUNCTIONS OF BALLAST - REQUIREMENTS OF BALLAST - MATERIAL USED AS BALLAST.

**3.4 RAIL FASTENINGS AND PLATE LAYING**

RAIL JOINTS - TYPES - RAIL FASTENINGS - FISH PLATES - FISH BOLTS SPIKES - CHAIRS AND KEYS - BEARING PLATES - BLOCKS - ELASTIC FASTENINGS - ANCHORS AND ANTI-CREEPERS - PLATE LAYING - METHODS OF PLATE LAYING - PORS METHOD OF RELAYING.

**3.5 MAINTENANCE OF TRACK**

NECESSITY - MAINTENANCE OF TRACK, BRIDGES AND ROLLING STOCK.

**4.1 STATIONS AND YARDS**

DEFINITION OF STATION - PURPOSE OF RAILWAY STATION - TYPES OF STATIONS - WAYSIDE, JUNCTION AND TERMINAL STATIONS - PLATFORMS - PASSENGER AND GOODS PLATFORMS - DEFINITION OF YARD - TYPES OF YARD - PASSENGER YARD, GOODS YARD, MARSHALLING YARD AND LOCOMOTIVE YARDS - LEVEL CROSSINGS.

**4.2 STATION EQUIPMENTS**

GENERAL - ENGINE SHED - ASH PITS - EXAMINATION PITS - DROP PITS - WATER COLUMNS - TRIANGLES - TURN TABLE - TRAVERSERS - SCOTCH BLOCK - BUFFER STOPS - FOULING MARKS - DERAILING SWITCH - SAND HUMP - WEIGH BRIDGES.

**4.3 POINTS AND CROSSINGS**

PURPOSE - SOME DEFINITIONS - TURNOUTS - RIGHT HAND AND LEFT HAND TURNOUTS - SLEEPERS LAID FOR POINTS AND CROSSINGS - TYPES OF SWITCHES - CROSSINGS - TYPES OF CROSSINGS.

**4.4 SIGNALLING**

GENERAL - OBJECTS OF SIGNALLING - TYPES OF SIGNALLING - BASED ON FUNCTION AND LOCATION - SPECIAL SIGNALS - CONTROL OF MOVEMENT OF TRAINS - DIFFERENT METHODS - FOLLOWING TRAIN SYSTEM - ABSOLUTE BLOCK SYSTEM - AUTOMATIC SIGNALLING - PILOT GUARD SYSTEM - CENTRALIZED TRAFFIC CONTROL SYSTEM.

**TEXT BOOKS:**

1. RANGWALA "HIGHWAY ENGINEERING", CHAROTOR PUBLISHING HOUSE PVT. LTD., EDITION 2010.

2. RANGWALA "RAILWAY ENGINEERING", CHAROTOR PUBLISHING HOUSE PVT. LTD., EDITION 2010.

3. RANGWALA "BRIDGE ENGINEERING", CHAROTOR PUBLISHING HOUSE PVT. LTD., EDITION 2009.

**REFERENCE BOOKS:**

1. S.P. CHANDOLA, "A TEXT BOOK OF TRANSPORTATION ENGINEERING" S CHAND & COMPANY LTD.

2. G.V. RAO, "PRINCIPLES OF TRANSPORTATION & HIGHWAY ENGINEERING" TATA MCGRAW-HILL PUBLISHING COMPANY LTD.

3. MADHAN MOHAN DASS, "STRUCTURAL ANALYSIS" PHI LEARNING PVT. LTD., NEW DELHI.

**STC APM**

**SYLLABUS COACHING**  
TRAINING - 2/UNIT TRAINING  
SELF - 4/UNIT ASSIGNMENT  
PRESENTATION - 2/UNIT  
SHOWTIME - 2/UNIT

**MATHS ILLUSTRATION - GEOMETRY EXPRESSIONS****ASCON RENG**

**SYLLABUS PERIOD**  
TRAINING - 2/2 HRS/UNIT  
REMOTE - 2/2 HRS/UNIT  
DURATION - SEMESTER  
ONLINE/REMOTE ACCESS

**MECHANICAL EXPRESSIONS - ANALYTIX CAMS****ARCADIA BIM**

**FEATURES**  
TRAINING BY IND. PROFESSIONAL  
INDUSTRY APPLICATION  
TRAINER OPPORTUNITY  
CERTIFICATION