

**DEMAND****PAVIATH INTEGRATED SOLUTION****CIVIL ENGG****CIVIL POLY****SURVEYING - I****Paviath ONLINE**

◆ CIVIL POLY ◆ II YEAR III SEM ◆ CODE CEM33

**OBJECTIVES:**

ON COMPLETION OF THE COURSE, THE STUDENTS WILL BE ABLE TO

- STATE THE INSTRUMENTS USED FOR CHAIN SURVEYING.
- COMPUTE INCLUDED ANGLES OF CLOSED TRAVERSE.

LIST DIFFERENT TYPES OF LEVELLING.

- WORK OUT FIELD PROBLEMS IN LEVELLING.
- PLOT THE PROFILE OF CROSS SECTION AND LONGITUDINAL SECTION.
- DEFINE CONTOUR AND CONTOUR MAPPING
- DESCRIBE THE COMPONENTS AND FUNCTIONS OF GLOBAL POSITIONING SYSTEM.
- STATE DIFFERENT APPLICATIONS OF GPS.

**INTRODUCTION TO SURVEYING AND CHAIN SURVEYING****1.1 INTRODUCTION TO SURVEYING**

DEFINITION - OBJECTIVES AND USES OF SURVEYING - MAIN DIVISIONS OF SURVEYING - PLANE AND GEODETIC SURVEYING - CLASSIFICATION OF SURVEYING - PRINCIPLES OF SURVEYING.

**1.2 CHAIN SURVEYING**

INTRODUCTION - INSTRUMENTS USED FOR CHAINING - CHAINS AND TAPES - TYPES - DEFINITIONS OF TERMS COMMONLY USED IN CHAIN SURVEYING: SURVEY STATIONS, BASE LINE, CHECK LINE AND TIE LINE - RANGING: DIRECT AND INDIRECT RANGING - OFFSETS: DEFINITION, TYPES, INSTRUMENTS USED AND PROCEDURE OF TAKING AN OFFSET - CONVENTIONAL SIGNS - CHAIN SURVEYING: EQUIPMENT REQUIRED, FIELD WORK AND RECORDING FIELD NOTES - ERRORS IN CHAINING - OBSTACLES IN CHAINING: TYPES - TAPE CORRECTION AND ITS NECESSITY.

**2.1 COMPASS SURVEYING**

ANGULAR MEASUREMENTS - NECESSITY - INSTRUMENTS USED - PRISMATIC COMPASS: CONSTRUCTION DETAILS, FUNCTIONS AND TEMPORARY ADJUSTMENT - TYPES OF MERIDIANS - TYPES OF BEARINGS: WHOLE CIRCLE AND REDUCED BEARINGS, FORE AND BACK BEARINGS - COMPUTATION OF INCLUDED ANGLES FROM BEARINGS - COMPUTATION OF BEARINGS FROM INCLUDED ANGLES - PROBLEMS - LOCAL ATTRACTION: DETECTION, CORRECTION AND PROBLEMS - DIP AND DECLINATION - COMPASS TRAVERSING - ERRORS IN COMPASS LEVELLING - DEFINITION - LEVEL - PARTS - FUNCTIONS - ACCESSORIES TYPES OF LEVELS: DUMPY LEVEL, MODERN TILTING LEVEL, QUICK SETTING LEVEL, AUTOMATIC AND LASER LEVEL - LEVELLING STAFF - TYPES - COMPONENT PARTS OF LEVELLING INSTRUMENT DEFINITIONS OF TERMS USED: LEVEL SURFACE, HORIZONTAL AND VERTICAL SURFACES, DATUM, BENCH MARKS, REDUCED LEVEL, RISE, FALL, LINE OF COLLIMATION, AXIS OF TELESCOPE, AXIS OF BUBBLE TUBE, STATION, BACK SIGHT, FORE SIGHT, INTERMEDIATE SIGHT, CHANGE POINT, HEIGHT OF INSTRUMENT, FOCUSING AND PARALLAX - TEMPORARY ADJUSTMENT OF A LEVEL - BALANCING BACK SIGHT AND FORESIGHT - PRINCIPLE OF LEVELLING - SIMPLE LEVELLING - THEORY OF DIFFERENTIAL LEVELLING (FLY LEVELLING) - LEVELLING FIELD BOOK - REDUCTION OF LEVELS - HEIGHT OF COLLIMATION AND RISE AND FALL METHOD

**4.1 LEVELLING (CONTO...)**

TYPES OF LEVELLING - CHECK LEVELLING: DEFINITION, FIELD PROCEDURE AND USE - PROFILE LEVELLING OR LONGITUDINAL SECTION (L.S.): DEFINITION, USE, FIELD PROCEDURE AND PLOTTING THE PROFILE - CROSS - SECTIONAL LEVELLING (C.S.): DEFINITION, USE, FIELD PROCEDURE AND PLOTTING THE CROSS-SECTION - SPECIMEN FIELD BOOK FOR L.S AND C.S - RECIPROCAL LEVELLING: DEFINITION, USE AND PROBLEMS ON DIFFERENCE IN ELEVATION - CURVATURE AND REFRACTION: EFFECTS, CORRECTION AND PROBLEMS - ERRORS IN LEVELLING - FUNDAMENTAL LINES AND DESIRED RELATIONSHIP BETWEEN THEM - PERMANENT ADJUSTMENTS OF A DUMPY LEVEL: PROCESS.

**CONTOUR SURVEYING AND GLOBAL POSITIONING SYSTEM****5.1 CONTOUR SURVEYING**

DEFINITION - CONTOUR - CONTOURING - CHARACTERISTICS OF CONTOURS - METHODS OF CONTOURING - DIRECT AND INDIRECT METHODS - TACHEMETRIC CONTOURING - INTERPOLATION OF CONTOURS - DIFFERENT METHODS - CONTOUR GRADIENT - USES OF CONTOUR PLAN AND MAP - CALCULATION OF CAPACITY OF RESERVOIR: SIMPLE PROBLEMS.

**5.2 GLOBAL POSITIONING SYSTEM (GPS)**

INTRODUCTION - MAPS - TYPES OF MAPS - VARIOUS SATELLITES USED BY GPS - DIFFERENTIAL GPS - FUNDAMENTALS OF GPS - APPLICATION OF GPS - GPS RECEIVERS - HAND HELD GPS RECEIVER - FUNCTION - FIELD PROCEDURE - OBSERVATION AND PROCESSING APPLICATIONS IN CIVIL ENGINEERING.

**TEXT BOOKS:**

1. KANETKAR, T.P. & S.V. KULKARNI, "SURVEYING AND LEVELLING PART I & 2", PUNA VIDYARTHI GRIHA, PRAKASHAN, 23RD EDITION, 2008.
  2. PUNMIA, B.C., ASHOK K. JAIN & ARUN K. JAIN, "SURVEYING VOLUME I", LAXMI PUBLICATIONS PRIVATE LIMITED, 16 EDITION, 2011.
- REFERENCE BOOKS:
1. MIMI DAS SAIKIA, BHARGAB MOHAN DAS & MADAN MOHAN DAS, "SURVEYING", PHI LEARNING PRIVATE LIMITED, EDITION 2010.
  2. S. K. ROY, "FUNDAMENTALS OF SURVEYING", PHI LEARNING PRIVATE LIMITED, EDITION 2010.
  3. LEARNING MATERIAL DEVELOPMENT PROJECT - NITTTR, TARAMANI, CHENNAI, CD PROGRAMME ON GPS AND GIS.

**APM Civil Engineering****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