

**DEMAND****PAVIATH INTEGRATED SOLUTION****CIVIL ENGG****CIVIL POLY****CONSTRUCTION MATERIALS AND CONSTRUCTION PRACTICE****Paviath ONLINE****◆ CIVIL POLY ◆ II YEAR III SEM ◆ CODE CEM32****OBJECTIVES:**

ON COMPLETION OF THE COURSE, THE STUDENT WILL BE FAMILIAR WITH:

- DIFFERENT CONSTRUCTION MATERIALS AND THEIR PROPERTIES.
- DIFFERENT TYPES OF CEMENT, GRADES OF CEMENTS AND TESTS ON CEMENT.
- DIFFERENT TYPES OF MODERN BUILDING MATERIALS SUCH AS CERAMIC PRODUCTS, GLASS, METALS AND PLASTICS.
- METHOD OF PREPARATION OF MORTAR AND CEMENT CONCRETE. STATE THE DIFFERENT TYPES OF STRUCTURES.
- DIFFERENT TYPES OF FOUNDATIONS.
- CLASSIFICATION OF STONE MASONRY & BRICK MASONRY. STATE THE DIFFERENT TYPES OF DOORS, WINDOWS, LINTELS & STAIRS.
- TYPES OF FLOORS AND ROOFS.
- DIFFERENT METHODS OF POINTING, PLASTERING AND TERMITE PROOFING.
- SCAFFOLDING, SHORING & UNDERPINNING AND FORM WORK.
- PROCEDURE OF COLOUR WASHING, WHITE WASHING, PAINTING AND VARNISHING.

CONSTRUCTION MATERIALS**1.1 INTRODUCTION**

PHYSICAL PROPERTIES OF MATERIALS – DENSITY, BULK DENSITY, SPECIFIC GRAVITY, POROSITY, WATER ABSORPTION, PERMEABILITY, CHEMICAL RESISTANCE, FIRE RESISTANCE, WEATHERING RESISTANCE, THERMAL CONDUCTIVITY, DURABILITY (ONLY DEFINITIONS)

1.2 ROCKS AND STONES

ROCKS – CLASSIFICATION OF ROCKS – GEOLOGICAL, PHYSICAL AND CHEMICAL CLASSIFICATION – USES OF STONES – REQUIREMENTS OF A GOOD BUILDING STONE – NATURAL AND ARTIFICIAL STONES FOR FLOORING – EXAMPLES (DETAILED DESCRIPTION NOT REQUIRED)

1.3 BRICKS

DEFINITION – BRICK EARTH – COMPOSITION OF GOOD BRICK EARTH – MANUFACTURING PROCESS – CLASSIFICATION OF BRICKS – PROPERTIES OF BRICKS – SPECIAL TYPES OF BRICKS AND THEIR USES – COMPRESSIVE STRENGTH OF BRICKS – TESTS ON BRICKS – GRADES AND CORRESPONDING REQUIREMENTS OF BRICKS AS PER BIS.

2.1 MORTAR

DEFINITION – PROPERTIES AND USES OF MORTAR – TYPES OF MORTAR – CEMENT AND LIME MORTAR – MIX RATIO OF CEMENT MORTAR FOR DIFFERENT WORKS.

2.2 CONCRETE

DEFINITION – CONSTITUENTS OF CONCRETE – MANUFACTURING PROCESS – BATCHING – PROPERTIES OF FRESH CONCRETE – VARIOUS TEST ON FRESH CONCRETE – PROPERTIES OF HARDENED CONCRETE – VARIOUS TEST ON HARDENED CONCRETE – TYPES OF CONCRETE.

2.3 PAINTS AND VARNISHES

DEFINITION – FUNCTIONS OF PAINT – TYPES OF PAINTS AND THEIR USES – OIL, ENAMEL, EMULSION, DISTEMPER, CEMENT, ALUMINIUM, BITUMINOUS AND PLASTIC PAINTS – VARNISHES – DEFINITION – CHARACTERISTICS OF A GOOD VARNISH – INGREDIENTS OF VARNISH – TYPES OF VARNISH AND THEIR USES – OIL, TURPENTINE, SPIRIT AND WATER VARNISH.

CONSTRUCTION PRACTICE**3.1 INTRODUCTION TO STRUCTURES**

PERMANENT AND TEMPORARY STRUCTURES – LIFE OF STRUCTURES – SUB STRUCTURE – SUPER STRUCTURE – LOAD BEARING STRUCTURE – FRAMED STRUCTURE – CONCEPT OF FRAMED STRUCTURE – ADVANTAGES OF FRAMED STRUCTURE.

3.2 BRICK MASONRY

DEFINITION – COMMON TERMS USED – HEADER, STRETCHER, BED JOINT, LAP, PERPEND, CLOSER, KING, QUEEN & BEVELLED, BAT – PERMISSIBLE LOADS IN BRICK MASONRY – BOND – TYPES – HEADER, STRETCHER, ENGLISH BOND & FLEMISH BOND – ONE BRICK THICK AND ONE AND A HALF BRICK THICK – "T" JUNCTION IN ENGLISH BOND – POINTS TO BE CONSIDERED IN THE CONSTRUCTION OF BRICK MASONRY – CAVITY BOND MASONRY – DEFECTS IN BRICK MASONRY – MAINTENANCE OF BRICK MASONRY – REINFORCED BRICK MASONRY – PURPOSE – ITS ADVANTAGE WITH RESPECT TO STRENGTH AND EARTHQUAKE RESISTANCE.

CONSTRUCTION PRACTICE**4.1 DOORS, WINDOWS AND VENTILATORS**

STANDARD SIZES OF DOORS AND WINDOWS – LOCATION OF DOORS AND WINDOWS – DIFFERENT MATERIALS USED – DOORS – COMPONENT PARTS – TYPES – FRAMED AND PANELLED – GAZED, FLUSH, LOUVERED, COLLAPSIBLE, ROLLING SHUTTER AND SLIDING DOORS – WINDOWS – TYPES – CASEMENT, GLAZED, BAY, CORNER – PIVOTED CIRCULAR AND DORMER WINDOWS – VENTILATORS – DEFINITION – PURPOSE – TYPES – VENTILATOR COMBINED WITH WINDOWS / DOORS.

4.2 HOLLOW BLOCK CONSTRUCTIONS

HOLLOW BLOCKS – ADVANTAGES OF HOLLOW BLOCKS – LOAD BEARING AND NON-LOAD BEARING HOLLOW BLOCKS – OPEN CAVITY BLOCKS – FACE SHELLS, WEB, GROSS AREA, NOMINAL DIMENSIONS OF BLOCKS, MINIMUM THICKNESS OF FACE SHELLS AND WEB, GRADES OF HOLLOW CONCRETE BLOCKS – MATERIALS USED, ADMIXTURES ADDED – MIXING, MOULDING, PLACING AND COMPACTING, CURING, DRYING – PHYSICAL REQUIREMENTS – USE OF LIGHT WEIGHT AGGREGATES – HOLLOW CONCRETE (HOLLOW BLOCK) MASONRY – CONSTRUCTION OF WALLS – ADVANTAGES OF HOLLOW CONCRETE MASONRY.

TEXT BOOK:

1. P.C.VARGHESE, "BUILDING MATERIALS", PRENTICE-HALL OF INDIA (P) LTD., 1 EDITION, 2011.
2. S.K.DUGGAL, "BUILDING MATERIALS", NEW AGE INTERNATIONAL (P) LTD., II EDITION, 2003.

REFERENCE BOOK:

1. S.C.RANGWALA, "BUILDING MATERIALS", CHAROTAR PUBLISHING HOUSE, VII EDITION, 1982.
2. P.C.VARGHESE, "BUILDING CONSTRUCTIONS", PRENTICE-HALL OF INDIA (P) LTD., I EDITION, 2011.
3. DR. B.C. PUNMIA, "BUILDING CONSTRUCTION", LAXMI PUBLICATIONS (P) LTD NEW DELHI.
4. S.C.RANGWALA, "BUILDING CONSTRUCTION", CHAROTAR PUBLISHING HOUSE, VII EDITION.
5. ASHOKKUMAR JAIN, "BUILDING CONSTRUCTION", LAXMI PUBLICATIONS (P) LTD CHENNAI.
6. I S 2185 PART I & II

**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