

**DEMAND****PAVIATH INTEGRATED SOLUTION****CIVIL ENGG****CIVIL POLY****ADVANCED CONSTRUCTION TECHNOLOGY****Paviath ONLINE****◆ CIVIL POLY ◆ III YEAR ELECTIVE ◆ CODE CEM53.1****OBJECTIVES:**

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

- PILE FOUNDATIONS MODIFIED CONCRETE
- PRE FABRICATION SYSTEMS AND METHODS
- FIRE PROTECTION IN BUILDINGS
- EARTHQUAKE PROOF CONSTRUCTION
- MAINTENANCE AND REHABILITATION OF BUILDINGS
- TO TAKE PRECAUTIONARY MEASURES TO PREVENT CRACKS IN BUILDINGS
- HOUSE MODERNIZATION
- LIFT MODERNIZATION.

**1.1 PILE FOUNDATIONS**

DEFINITION - USES OF PILES - TYPES OF PILES - BEARING PILES AND FRICITION PILES- CLASSIFICATION BASED ON MATERIAL- STONE PILES- ENCASED PILES- REINFORCED CEMENT CONCRETE PILES- CAST-IN SITU PILE AND PRECAST PILES- DESCRIPTION, ADVANTAGES AND DISADVANTAGES - LOAD BEARING PILES AND FRICITION PILES - PURPOSE - SHEET PILES- TYPES - DESCRIPTION - CHOICE OF TYPE OF PILE - FACTORS TO BE CONSIDERED - PILE CAP AND PILE SHOE - DESCRIPTION - LOAD TEST ON PILES - DESCRIPTION - PILE DRIVING- EQUIPMENT - TYPES OF HAMMER- CHOICE OF HAMMER- CAUSES OF FAILURE OF PILES- REINFORCEMENT REQUIREMENTS FOR RC PILES.

**1.2 MODIFIED CONCRETE****2.1 PREFABRICATION SYSTEM:**

ADVANTAGES AND DISADVANTAGES OF PREFABRICATION SYSTEM- METHODS DEFINED: PRE FABRICATED BUILDING, MODULE, COMPOSITE MEMBERS, MODULAR CO-ORDINATION, SYSTEM- BASIC MODULE - PLANNING MODULES GRID- MODULES IN HORIZONTAL PLANE FOR RESIDENTIAL BUILDING AND INDUSTRIAL BUILDINGS - OTHER CONSIDERATION - MODULE FOR COMPONENTS- FLOORING SCHEME, BEAMS, COLUMNS, WALLS, STAIRCASE- LINTEL, SUNSHADE- TOLERANCE ON DIMENSIONS- LENGTH, CROSS SECTIONAL DIMENSION, STRAIGHTNESS, SQUARENESS, TWIST, FLATNESS.

**2.2 PREFABRICATION METHODS****3.1 FIRE PROTECTION IN BUILDINGS**

General - causes and effects of fire- pre cautionary measures To minimize dangers of fire - limiting fire spread - factors to be considered - Fire resisting properties of common building material - general rules for fire resisting buildings - alarm system - protection of openings - common wall stair-floor fire extinguishing arrangement - fire protection systems - types - Emergency exit arrangements - Strong room construction - fire safety norms as per NBC.

**3.2 EARTH QUAKE RESISTING CONSTRUCTION**

Indian Seismicity - Earthquake History - Definition of terms used - Behavior of structures in the past Earthquakes - Seismic forces - Effect of seismic forces on Buildings - Planning of Earthquake Resistant Buildings - Roofs and Floors - Articulation joints - Expansion Joints - IS code provision - Alterations to Buildings - Foundation - Permissible increase in the allowable Bearing capacity of soils - Seismic coefficient for different zones - Construction of framed buildings in Earthquake zones - Walls - Beams etc.

**4.1 MAINTENANCE AND REHABILITATION OF BUILDINGS**

REHABILITATION OF BUILDINGS - DEMOLITION OF BUILDINGS - SAFETY ASPECTS - GENERAL - PRECAUTIONS DURING DEMOLITIONS - SEQUENCE OF DEMOLITION OF OPERATION - DEMOLITION PROCESS OF TRUSSES, GIRDDERS AND BEAMS, WALLS, FLOORING - CATCH PLATFORM - LOWERING REMOVAL AND DISPOSAL OF MATERIALS - MECHANICAL DEMOLITION - REPAIRS TO BUILDING - REPAIRING OF PLASTERING WORKS- FIXING DOORS IN - MAKING OPENING IN MASONRY AND FIXING DOORS AND WINDOWS - RENEWING GLASS PANE WITH WOODEN FILLETS - FIXING FAN CLAMPS IN EXISTING R.C.C SLAB - REPAIR TO TERRAZZO(MOSAIC) FLOORING.

**4.2 PRECAUTIONS TO PREVENT CRACKS IN BUILDINGS**

CRACKS - GENERAL - HAIR CRACK - STRUCTURAL CRACK - HORIZONTAL CRACK IN MASONRY - VERTICAL / DIAGONAL CRACK SAT WALLS - R.C.C BEAMS OR PILLARS - TRANSVERSE CRACKS IN R.C.C SLAB AND SUNSHADE - REPAIRS - METHODS - MATERIALS USED FOR FILLING CRACKS.

**5.1 HOUSING MODERNIZATION**

HOUSING MODERNIZATION AND MANAGEMENT (BUILDING AND CONSTRUCTION SAFETY, ENERGY EFFICIENCY INHOUSING, PROPERTY REFURBISHMENT / UPGRADE/ MODERNIZATION / RENOVATION - MODULAR KITCHENS, BATH ROOMS, NEW WINDOWS, DOORS AND TIMBER FLOORS, ROOF INSULATION, DRY LINING AND BER(BUILDING ENERGY RATING) - CERTIFICATES - PLUMBING AND ELECTRICAL TO HEATING EFFICIENCY LAND SCAPING AND DRIVE WAY STOPPAGES AND DECKING - DRAFTING A CONSTRUCTION CONTRACT - TRANSFORMING FROM TRADITIONAL TO MODERN STYLE - CASE STUDIES - STRENGTHENING OF OLD BUILDINGS - ENERGY - SAVING HOUSES, GREEN HOUSE, PASSIVE HOUSE, PASSIVE HOUSE CONSTRUCTION, LOW- ENERGY HOUSE, ZERO- ENERGY HOUSE, ENERGY CONSULTING, ENERGY EFFICIENCY: PASSIVE HOUSE STANDARD , QUALITY-TESTED COMMERCIAL PASSIVE HOUSE CONSTRUCTION, OFFICE BUILDING CONSTRUCTION, RESIDENTIAL BUILDING CONSTRUCTION- CONSULTING, PLANNING, SUPERVISING - GREEN BUILDING CONCEPTS - MATERIALS - RATINGS.

**5.2 LIFT MODERNIZATION**

INDEPENDENT LIFTING SERVICES- MECHANICAL MODERNIZATION- ESCALATORS OR PATHWAYS -AESTHETIC MODERNIZATION - LIFT CAR INTERIOR - ECO-FRIENDLY MODERNIZATION- LIFT CONSTRUCTION- REVISION AND TEST

**TEXT BOOK:****1. CONCRETE TECHNOLOGY - M.S. SHETTY****2. FIRE RESISTANT CONSTRUCTION - BUILDING CONSTRUCTION BY S.P. ARORA AND S.P. BINDRA****REFERENCE BOOK:****1. EARTH QUAKE PROOF - BUILDING CONSTRUCTION BY DR. JANARDHAN JHA****PROF. SURESH KUMAR**  
**2. SINHA IS CODE OF PRACTICE FOR EARTH QUAKE , IS CODE OF PRACTICE FOR FIRE RESISTANCE, IS CODE OF PRACTICE FOR PRE STRESSING (2005)****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