



DEMAND

PAVIATH INTEGRATED SOLUTION

CIVIL ENGG

CIVIL UNIV

ENVIRONMENTAL ENGINEERING

Paviath ONLINE

◆ CIVIL UNIVERSITY ◆ THIRD YEAR II SEMESTER ◆ CODE A60119

#### UNIT - I

INTRODUCTION: WATER SUPPLY SCHEMES - PROTECTED WATER SUPPLY - POPULATION FORECASTS. DESIGN PERIOD - WATER DEMAND - TYPES OF DEMAND - FACTORS AFFECTING - FLUCTUATIONS - FIRE DEMAND - SOURCES OF WATER- INTAKES - INFILTRATION GALLERIES. CONFINED AND UNCONFINED AQUIFERS - WATER QUALITY PARAMETERS AND TESTING - DRINKING WATER STANDARDS.

#### UNIT II

LAYOUT AND GENERAL OUTLINE OF WATER TREATMENT UNITS - SEDIMENTATION. UNIFORM SETTLING VELOCITY- PRINCIPLES - DESIGN FACTORS - SURFACE LOADING - JAR TEST - OPTIMUM DOSAGE OF COAGULANT - COAGULATION- FLOCCULATION. CLARIFIER DESIGN - COAGULANTS - FEEDING ARRANGEMENTS. FILTRATION - THEORY - WORKING OF SLOW AND RAPID GRAVITY FILTERS - MULTIMEDIA FILTERS - DESIGN OF FILTERS - TROUBLES IN OPERATION COMPARISON OF FILTERS - DISINFECTION - TYPES OF DISINFECTION - THEORY OF CHLORINATION - CHLORINE DEMAND - OTHER DISINFECTION TREATMENT METHODS. DISTRIBUTION SYSTEMS - TYPES OF LAYOUTS OF DISTRIBUTION SYSTEMS - DESIGN OF DISTRIBUTION SYSTEMS - HARDY CROSS AND EQUIVALENT PIPE METHODS - SERVICE RESERVOIRS - DETERMINATION OF STORAGE CAPACITY.

#### UNIT - III

CONSERVANCY AND WATER CARRIAGE SYSTEMS - SEWAGE AND STORM WATER ESTIMATION - TIME OF CONCENTRATION - STORM WATER OVERFLOWS COMBINED FLOW - CHARACTERISTICS OF SEWAGE - EXAMINATION OF SEWAGE - B.O.D. - C.O.D. EQUATIONS. DESIGN OF SEWERS - SHAPES AND MATERIALS - SEWER APPURTENANCES MANHOLES - INVERTED SIPHON - CATCH BASINS - FLUSHING TANKS - EJECTORS, PUMPS AND PUMP HOUSES - HOUSE DRAINAGE - COMPONENTS REQUIREMENTS - SANITARY FITTINGS-TRAPS - ONE PIPE AND TWO PIPE SYSTEMS OF PLUMBING.

#### UNIT - IV

LAYOUT AND GENERAL OUT LINE OF VARIOUS UNITS IN A WASTE WATER TREATMENT PLANT - PRIMARY TREATMENT DESIGN OF SCREENS - GRIT CHAMBERS - SKIMMING TANKS - SEDIMENTATION TANKS - PRINCIPLES AND DESIGN OF BIOLOGICAL TREATMENT - TRICKLING FILTERS - STANDARD AND HIGH RATE- FILTERS - ASP - ASP MODIFICATION - AERATION.

#### UNIT - V

CONSTRUCTION AND DESIGN OF OXIDATION PONDS - OXIDATION DITCHES - SLUDGE TREATMENT - SLUDGE DIGESTION TANKS - DESIGN OF DIGESTION TANK -FACTORS AFFECTING SLUDGE DIGESTION - SLUDGE DISPOSAL BY DRYING - SEPTIC TANKS - WORKING PRINCIPLES AND DESIGN - SOAK PITS. ULTIMATE DISPOSAL OF WASTE WATER - SELF PURIFICATION OF RIVERS - SEWAGE FARMING..

#### TEXT BOOKS:

1. WATER SUPPLY & SANITARY ENGINEERING BY G.S.BINDIE.
  2. WATER SUPPLY ENGINEERING. VOL. I. WASTE WATER ENGINEERING, VOL. II. B.C. PUNMIA, ASHOK JAIN & ARUN JAIN, LAXMI PUBLICATIONS PVT.LTD, NEW DELHI.
  3. WATER SUPPLY ENGINEERING VOL.I & WASTE WATER ENGINEERING VOL. II. P.N. MODI, STANDARD BOOK PUBLISHERS, NEWDELHI.
- REFERENCES :
1. WATER AND WASTE WATER TECHNOLOGY BY MARK J HAMMAR AND MARK J. HAMMAR JR.
  2. WATER AND WASTE WATER TECHNOLOGY BY STEEL.
  3. WATER AND WASTE WATER ENGINEERING BY FAIR GEYER AND OKUN.
  4. WASTE WATER TREATMENT- CONCEPTS AND DESIGN APPROACH BY G.L. KARIA AND R.A. CHRISTIAN, PHIL.
  5. WASTE WATER ENGINEERING BY METCALF AND EDDY.
  6. THEORY & PRACTICE OF WATER & WASTEWATER TREATMENT BY RONALD L. DROSTE, WILEY INDIA PUBLISHERS.



APM Civil Engineering

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ARCADIA BIM

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

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

FEATURES  
TRAINING BY IND. PROFESSIONAL  
INDUSTRY APPLICATION  
TRAINER OPPORTUNITY  
CERTIFICATION