GUJARAT TECHNOLOGICAL UNIVERSITY

CIVIL (WATER RESOURCES ENGINEERING) (33)
WATER SUPPLY AND DRAINAGE
SUBJECT CODE: 2713306
SEMESTER: I

Type of course: Water supple engineering

Prerequisite: Knowledge of water supply engineering, component of intake. Flow measurement devices, pipe network design, storm water discharge calculation

Rationale: Student will be able to understand planning of water supply scheme, exposure of various software for design of pipe network, principles for hydraulic design of storm water sewer with calculation of flood discharge.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P	C	Theory Marks		Practical Marks				
						PA (V)		PA (I)		
				ESE (E)	PA (M)	ESE	OEP	PA	RP	
3	2	2	5	70	30	20	10	20	0	150

Content:

Sr. No.	Topics	Teaching Hrs.	Module Weightage
1	Planning of water supply scheme, feasibility study	6	15
2	Intake, radial collector well, storage sump and service reservoirs, pumps and its selection	12	25
3	Measurement of flow and SCADA, Different types of pipe materials, Appurtenances, Losses in pipes, Analysis of pipe network using EPANET	12	30
4	Prediction of flood for urban storm drainage, Rational method, hydraulics of flow in open channel, hydraulic design of storm sewer, Storm water detention and selection of detention pond	12	30

Reference Books:
1. Manual of Water Supply and Treatment, CPHEEO, Ministry of Urban Development, New Delhi
2. Hydrosystem Engineering and Management, Mays, L.W. and Tung, Y.K., McGraw Hill New York
3. Applied Hydrology, Chow, V.T, Maidment, D.R. and Mays, L.W., McGraw Hill
4. Computer Assisted Floodplain Hydrology and Hydraulics: Hogan, D.H, Mc-Graw-hill New york

Course Outcome:
After learning the course the students should be able to: Understand demand of water, design of intakes and ESR, analysis of pipe network, understand urban storm discharge and hydraulic design of storm sewer.

List of Experiments:

1. Feasibility study of water supply and water treatment plant
2. Population forecasting method and estimation of water demand
3. Study of SCADA, EPANET based pipe network
4. Urban storm water drainage parameters and design methods
5. Design of Pumps

Open Ended Projects:

1. Design and analysis of pipe network
2. Urban storm water modeling
3. Hydraulic design of storm water sewer

Major Equipments: Model of intake**,** Software EPANET and SCADA

List of Open Source Software/learning website

http://en.wikipedia.org/wiki/Water_supply_network

http://en.wikipedia.org/wiki/Stormwater