



# GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor/Master of Engineering Syllabus

Subject Code : 3716505

Subject Name : Water Supply & Drainage

WEF Academic Year :	2023 - 24
Semester :	1
Category of the Course :	Program Elective I

**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.

## Course Scheme :

Teaching Scheme			Total Credits	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Practical		
				ESE (E)	PA(M)	ESE (V)	PA (I)	
3	0	2	4	70	30	20	30	150

## Course Content :

Sr. No.	Course Content	No. of Hours	% of Weightage
1	Sources Of Water ,Water Supply Systems Planning of water supply scheme, feasibility study, Study on Project area and need for the project, Long term plan of water supply scheme , institutional and Functional Aspect . Sustainable water supply	8	15
2	Intake, Wet and Dry Intake, radial collector well, Design of Intake .Transmission of Water , Free flow and pressure conduit storage sump and service reservoirs, pumps and its selection	10	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
	<b>Total</b>		<b>100</b>



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## Reference Books :

1. Manual of Water Supply and Treatment, CPHEEO, Ministry of Urban Development, New Delhi
2. Hydro system 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
6. Case study of water supply scheme

## 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/Water_supply_network)

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

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