

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme		Bachelor of Technology			Branch/Spec.		Civil Engineering		
Semester		VII			Version		2.0.0.0		
Effective from Academic Year			2016-17		Effective for the batch Admitted in			2014-15	
Subject code		2CI714		Subject Name		ELECTIVE PAPER – I (WATER RESOURCES ENGINEERING - I)			
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3		1		4	Theory	40	60	100
Hours	3		2		5	Practical	35	15	50
Pre-requisites:									
HYDROLOGY & WATER RESOURCE ENGINEERING, FLUID MECHANICS AND IRRIGATION ENGINEERING									
<p>Students will learn about the water systems, sectors, agencies etc. They will be taught the hydraulic transients, Pumps, OC hydraulics, GVF and RVF, predicting water profiles. Flood routing and stochastic hydrology, further application of ground water development is also included.</p>									
Theory syllabus									
Unit	Content								Hrs
1	Introduction to Water Resources Engineering: Water resources engineering, disciplines, water management sectors, water management community, computer models in WRE,								2
2	Hydraulic Transients and Open Channel Hydraulics: Basic equations for unsteady flow, pumps in pipelines, Rapidly varied flow, unsteady flow, generalized open channel hydraulics models, numerical methods. Generalized pipe system, simulation models.								6
3	Micro Irrigation Systems: Importance, Types, Conditions favouring the MIS, Planning and Design of Sprinkler Irrigation and Drip Irrigation systems.								8
4	Flood Routing: Hydrologic routing, kinematic routing, hydraulic stream routing, generalized flood routing models.								6
5	Application of Geoinformatics & Remote sensing in WRE: Introduction, Image interpretation, GIS and Application of Geoinformatics and Remote sensing for WRE								7

5	Stochastic Hydrology: Hydrologic random variables and data, probability relationships, binomial distribution and risk formula, empirical relative frequency relations, analytical probability distributions, frequency graphs, flood frequency analysis methods, precipitation frequency analysis, probable maximum storm.	6
6	Ground Water Engineering: Ground Water importance, occurrence, Movement, Flow Principles. Ground Water Management, numerical methods, ground water quality, generalized ground water models.	4
Practical content		
Term work shall be based on the above mentioned course content.		
Text Books		
1	Water Resources Engineering-Ralph A. Wurbs, Weshly P. James	
2	Watershed Hydrology by Peter E. Black	
3	Engineering Hydrology - K. Subramanya	
Reference Books		
1	Hydrology and Water Resources Engineering by James & Lee	
2	Principles of Water Resources Planning by D. C. Goodman, S. Alvin	