

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme		Bachelor of Technology			Branch/Spec.		CIVIL Engineering		
Semester		V			Version		2.0.0.0		
Effective from Academic Year			2019-20		Effective for the batch Admitted in			2014-15	
Subject code		2CI502		Subject Name		HYDROLOGY AND WATER RESOURCES ENGINEERING			
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:									
Learning Outcome:									
After completion of the curriculum the students aware basic knowledge of water resources management. They are understand basic of hydrology, rain gauge stations & measurement of rainfall, evaporation and transpiration, runoff, hydrograph analysis, flood, ground water hydrology and simulation modelling.									
Theory syllabus									
Unit	Content								Hrs
1	Introduction: The hydrologic cycle, history of hydrology, scope and application of hydrology, importance of water resources.								4
2	Precipitation: Types of precipitation, geographical distribution, time distribution, variability, measurement, average depth over area, depth area duration.								6
3	Evaporation and Transpiration: Factor affecting, measurement, evaporation in reservoirs, methods of prevention.								3
4	Infiltration: Introduction, factor affecting, measurement.								3
5	Runoff : Runoff process; relation of storm period and rainfall, factors affecting runoff methods of computation; gauging runoff of stream; stage discharge relationships interpretation of stream flow records.								4
6	Hydrograph Analysis: Components of the hydrograph; Separation of base flow, components unit hydrographs, S-hydrographs.								7

7	Floods: Causes of floods, methods of estimation of floods. Design floods, damages, flood routing through reservoirs, methods of flood control, flood forecasting and warning.	7
8	Groundwater Hydrology: Occurrence and movement of groundwater, surface and subsurface investigation of groundwater, flow through saturated porous medium.	5
9	Simulation Modelling: Introduction, types, application in hydrology and water resources engineering.	2
Practical content		
Practical and Term work shall be based on the above mentioned course content.		
Text Books		
1	Hydrology and Water Resources Engineering by S. K. Garg ,Khanna Publisher.	
2	Engineering Hydrology - K. Subramanya, Tata Mc GrawHill Publication.	
Reference Books		
1	Watershed Hydrology by Peter E. Black, Hewis Publisher	
2	Hydrology by H. M. Raghunath, New Age International Publisher	