

FYUGP CURRICULAR FRAMEWORK FOR WATER MANAGEMENT AS MAJOR FOR 2024

SEMESTER	COURSE CODE	COURSE TYPE	COURSE TITLE	CREDITS	
				THEORY	PRACTICAL
I	WMG124J	CT - I	WATER MANAGEMENT: INTRODUCTION TO WATER	4	2
II	WMG224J	CT - I	WATER MANAGEMENT: HYDROLOGY AND HYDRAULICS	4	2
III	WMG324J	CT - I	WATER MANAGEMENT: WATER CHEMISTRY	4	2
IV	WMG422J1	CT - I	WATER MANAGEMENT: WATER POLLUTION	3	1
	WMG422J2	CT - II	WATER MANAGEMENT: WATER QUALITY MONITORING AND ASSESSMENT	4	2
	WMG422J3	CT - III	WATER MANAGEMENT: WATER AND SUSTAINABLE DEVELOPMENT	4	2
V	WMG522J1	CT - I	WATER MANAGEMENT: WATER RESOURCE MANAGEMENT	3	1
	WMG522J2	CT - II	WATER MANAGEMENT: WATER MANAGEMENT IN AGRICULTURE	4	2
	WMG522J3	CT - III	WATER MANAGEMENT: FLOOD AND DROUGHT MANAGEMENT	4	2
VI	WMG622J1	CT - I	WATER MANAGEMENT: WATER AND WASTEWATER ENGINEERING	3	1
	WMG622J2	CT - II	WATER MANAGEMENT: FRESH WATER ECOLOGY	4	2
	WMG622J3	CT - III	WATER MANAGEMENT: BIOREMEDIATION AND RESTORATION	4	2
FYUGP HONOURS					
VII	WMG722J1	CT - I	WATER MANAGEMENT: ENVIRONMENTAL IMPACT ASSESSMENT IN WATER MANAGEMENT	3	1
	WMG722J2	CT - II	WATER MANAGEMENT: CLIMATE CHANGE AND WATER	4	2
	WMG722J3	CT - III	WATER MANAGEMENT: WATER LAW AND POLICY	4	2
VIII	WMG822J1	CT - I	WATER MANAGEMENT: WATER SANITATION AND PUBLIC HEALTH	3	1
	WMG822J2	CT - II	WATER MANAGEMENT: WATER ECONOMICS AND GOVERNANCE	4	2
	WMG822J3	CT - III	WATER MANAGEMENT: OCEANOGRAPHY	4	2
FYUGP HONOURS WITH RESEARCH					
VIII	WMG822RJ1	CT - I	WATER MANAGEMENT: RESEARCH METHODOLOGY AND ETHICS	3	1
	WMG822P	PROJECT	WATER MANAGEMENT: RESEARCH PROJECT	12	

HoD / CONVENOR BOUGS

BACHELORS WITH WATER MANAGEMENT AS MAJOR (CT – I)
1st SEMESTER

WMG124J WATER MANAGEMENT _ INTRODUCTION TO WATER

CREDITS: THEORY: 4, PRACTICAL:2

COURSE OUTCOME:

This paper is to offer a better insight on basics of water ranging from importance, characteristics distribution and consumption patterns.

UNIT I: WATER CHARACTERISTICS

Origin of water on earth, Unique properties of water, Major cations (Ca, Mg, Na, K), Major anions (bicarbonate, sulphate, chloride), Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD), Microbial water quality-coliform bacteria

UNIT II: WATER RESOURCES

Water as a resource, Types of water resources, Inland water distribution and importance, Ground water distribution and importance, Cryosphere: Distribution and importance, Marine waters: Distribution and importance, Water resources of J&K (River systems and glaciers)

UNIT III: WATER CONSUMPTION

Distribution of water, Availability and consumption patterns in domestic, Industrial, and agricultural sectors, Concept of water stress and scarcity, Water footprint, Domestic water demand and consumption in urban and rural India, Sustainable Development Goal 6 (SDG)

UNIT IV: WATER AND HUMAN CIVILIZATION

Importance of water in human civilization (Mesopotamian and Indus), Water catastrophes: Historical perspective and consequences, Water infrastructure and tools (Ancient, Medieval and modern)

PRACTICAL:

1. Estimation of Chloride in water
2. Estimation of hardness in water
3. Estimation of alkalinity in water
4. Estimation of water temperature
5. Evaluation of per capita domestic water consumption pattern
6. Calculation of personal water footprint
7. Visit to any archeological/ water supply scheme/ relevant site for demonstration of Water infrastructure
8. Determination of water quality on basis of odor and color

SUGGESTED READINGS:

1. Bansil, P.C. 2004. *Water Management in India*. Concept Publishing Company, India. Brebbia, C.A. 2013. *Water Resources Management VII*. WIT Press.
2. CEA. 2011. *Water Resources and Power Maps of India*. Central Board of Irrigation & Power.
3. Grumbine, R.E. and Pandit, M.K. 2013. Threats from India's Himalaya dams. *Science* 339: 36-37.
4. Loucks, D.P., Stedinger, J.R. & Haith, D. A. 1981. *Water Resource Systems Planning and Analysis*. Englewood Cliffs, NJ, Prentice Hall.
5. Mays, L.W. 2006. *Water Resources Sustainability*. The McGraw-Hill Publications.
6. Schward and Zhang, 2003. *Fundamentals of Groundwater*. John Willey and Sons.
7. Souvorov, A.V. 1999. *Marine Ecologonomics: The Ecology and Economics of Marine Natural Resource Management*. Elsevier Publications.
8. Vickers, A. 2001. *Handbook of Water Use and Conservation*. Water Plow Press.