

Panipat Institute of Engineering and Technology

Department of Civil Engineering

For Lectures in B. Tech. Civil Engineering Seventh Semester

Course No.	Title of the Course	Course Structure	
CE-405A	Water Resources Engineer	L-T-P	3-0-0
COURSE OUTCOMES (CO)			
CO1	Students will able to study the concept of water resource planning		
CO2	Students will of understand basics of economics		
CO3	Students will study about water resource systems		
CO4	Students Will study about application of system approaches for water resources		
Unit No	Topics To Be Covered	Lecture Nos	
1	Introduction about Water Resources Planning	1	
	Role of water in national development, assessment of water resources	2	
	planning process, environmental consideration in planning	3	
	system analysis in water planning, some common problems in project planning	4	
	functional requirements in multipurpose projects, multipurpose planning, basin wise planning	5	
	long term planning, reservoir planning dependable yield	6	
	sedimentation in reservoir, reservoir capacity	7	
	Empirical area reduction method	8	
2	Economic and Financial Analysis, Meaning and nature of economic theory	9	
	micro and macroeconomics, the concept of equilibrium	10	
	equivalence of kind, equivalence of time and value, cost benefit	11	
	Discounting factors and techniques, conditions for project optimality	12	
	cost benefit analysis, cost allocation	13	
	separable and non-separable cost, alternate justifiable and remaining benefit methods	14	
3	profitability analysis	15	
	Concept of system's engineering, optimal policy analysis	16	
	simulation and simulation modeling	17	
	nature of water resources system, analog simulation	18	
	limitations of simulation, objective function	19	
	production function, optimality condition	20	
	linear, and nonlinear programming	21	
	dynamic programming	22	
applications to real time operations of existing system, hydrologic modeling, and applications of basic concepts	23		
		24	

4	Applications of system engineering in practical problems like hydrology	25-26
	Applications of system engineering in practical problems like irrigation	27-28
	Applications of system engineering in practical problems like distribution network	29-30
	mathematical models for forecasting and other water resources related problems	31-32

Sr. No.	Course Coordination Committee	Name	Contact No	E-Mail Id
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