**College of Engineering Department of Civil Engineering** 



## **CE 529** Special Topics in Water & Hydraulics

Credit and Contact hours	3 / 3 (Lectures), 0 (Tutorials), 0 (Laboratory)		
Required, or Elective	Elective		
Course Description	The selected topics may cover flood damage assessment, flood control strategies, and systems, application of remote sensing and GIS in rainfall-runoff modeling. Such topics depend on student interest and faculty expertise.		
Prerequisites or Co- requisites	None		
Course Learning Outcomes	Students completing this course successfully will be able to:		
	Course Learning Outcomes (CLOs)	Related Student Outcomes (SO)	
	CLO1. Recognize the different types of methodologies and techniques to solve water resources problems. K1	SO1	
	<b>CLO2.</b> Implement appropriate methods and techniques for analyzing water resource problems using computer application programs, such as ARC-GIS, WMS, HEC-HMS, and HEC-RAS. S1	SO2	
	CLO3. Develop Conceptual Hydrological/hydraulic models in different regions. S1	SO2	
	<b>CLO4.</b> Perform and demonstrate the results for developing a hydrological/Hydraulic model to simulate a real problem in water resources on a case study. V1	SO6	
Student	SO 1 Recognize advanced engineering knowledge, concepts, and techniques to identify, interpret, and analyze complex and real-life engineering problems.		
Outcomes related to this Course	SO 2 Provide solutions for complex and real-life engineering problems through critical thinking and the use of modern engineering tools, and identify their impact on social, global, cultural, environmental, safety, and economic factors.		
	SO 6 Demonstrate scientific integrity, ethical responsibility, and academic values in scientific publications, research projects, and thesis work.		
	List of Topics	Related CLOs	
Topics Covered	1. Review of recent research and development in water resources	CLO 1	
	2. Drought assessment and management	CLO 2,3,4	
	3. Flood control assessment	CLO 2,3	
	4. Flood control strategies and systems	CLO 3,4	
	5. Application of remote sensing and GIS in rainfall-runoff modeling	CLO 2,3,4	

Textbook(s) and Other Required Material	<ul> <li>Mays L.W. and Y.K. Tung, Hydrosystems Engineering and Management, McGraw-Hill, 1992.</li> <li>Chow, V. T., Maidment, D. R., and Mays, L. W., 1988, Applied Hydrology, McGraw-Hill, GB 661.2 C43</li> <li>Dingman, S. L., 1994. Physical Hydrology. Prentice Hall, GB 661.2 D56</li> </ul>		
Grading System	Assignments Lecture attendance Midterm Exam Project-report and presentation Final Exam	20%  20% 20% 40%	
Instructors	Dr.Khalid Alnajim		
Date of Review	March, 2025		