

College of Engineering

Department of Civil Engineering

جامعة
الملك سعود
King Saud University



CE 529 Special Topics in Water Resources & Hydraulics

Credit and Contact hours	3/ 3 (Lectures), 0 (Tutorials), 0 (Laboratory)								
Required, or Elective	Elective for a MSCE degree								
Course Description	Any special topic related to Water Resources and Hydraulics not covered in the courses. 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	<p>Students completing this course successfully will be able to</p> <table border="1"><thead><tr><th>Course Learning Outcomes</th><th>Related Program Outcomes</th></tr></thead><tbody><tr><td>CLO1: Recognize the different types of methodologies and techniques to solve water resources problems.</td><td>K1</td></tr><tr><td>CLO2: Select and apply appropriate methods and techniques for analyzing water resources problems using relevant computer application programs; for example: ARC-GIS, WMS, HEC-HMS and HEC-RAS.</td><td>S1</td></tr><tr><td>CLO3: Review, explain, discuss and evaluate the recent research and developments in water resources</td><td>C1</td></tr></tbody></table>	Course Learning Outcomes	Related Program Outcomes	CLO1: Recognize the different types of methodologies and techniques to solve water resources problems.	K1	CLO2: Select and apply appropriate methods and techniques for analyzing water resources problems using relevant computer application programs; for example: ARC-GIS, WMS, HEC-HMS and HEC-RAS.	S1	CLO3: Review, explain, discuss and evaluate the recent research and developments in water resources	C1
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Student Outcomes related to this Course	<p>K1. Recognize advanced engineering knowledge, concepts and techniques to identify, interpret and analyze complex and real-life engineering problems.</p> <p>S1. Provide solution for complex and real-life engineering problems through critical thinking and using modern engineering tools and identify its impact on social and ethical issues.</p>								

	C1. Criticize and discuss scientific research reports /papers related to Civil Engineering issues with high level of ethics and proficiency, independently, or as a team work.	
Topics Covered	List of Topics	Related CLOs
	1. Review of recent research and developments in water resources	CLO1
	2. Application of remote sensing and GIS in rainfall runoff	CLO2
	3. Analyzing water resources problems using relevant computer application programs	CLO2
	4. Drought and flood management	CLO3
	5. Flood damage assessment	CLO3
	6. Flood control strategies and systems	CLO3
Textbook(s) and Other Required Material	<ul style="list-style-type: none"> • Mays L.W. and Y.K. Tung, Hydrosystems Engineering and Management, McGraw-Hill, 1992. • Chow, V. T., Maidment, D. R., and Mays, L. W., 1988, Applied Hydrology, McGraw- Hill, GB 661.2 C43 • Dingman, S. L., 1994. Physical Hydrology. Prentice Hall, GB 661.2 D56 	
Grading System	Assignments	20%
	Project Work	20 %
	Midterm Exam	20%
	Final Exam	40%
Instructors	Dr. Ali O. Al-alnahit / Dr. Raid Alharbi E-mail: alialnaheet@ksu.edu.sa Office 2A24	
Date of Review	February, 2021	