

College of Engineering

Department of Civil Engineering



## CE 426 Water Resources Planning

<b>Credit and Contact hours</b>	3 / 3 (Lectures), 1 (Tutorials), 0 (Laboratory)	
<b>Required, or Elective</b>	Elective for a BSCE degree	
<b>Course Description</b>	A course that introduces the main concepts and principles of water resources planning; Determining water supply and water demand from possible resources and for different purposes . Realizing the different considerations in planning: economic , social, legislative , and environmental and presenting the water resources planning for Saudi Arabia as a case study .	
<b>Prerequisites or Co-requisites</b>	CE 424 (Hydrology)	
<b>Course Learning Outcomes</b>	Students completing this course successfully will be able to	
	<b>Course Learning Outcomes</b>	<i>Related Student Outcomes (SO)</i>
	<b>CLO1:</b> Determine the water supply and water demand from possible resources and for different purposes	<b>SO1</b>
	<b>CLO2:</b> Realize the different considerations in planning water resources: economic, social, legislative, and environmental	<b>SO2</b>
	<b>CLO3:</b> Demonstrate the water resources planning for Saudi Arabia as a case study.	<b>SO3</b>
<b>Student Outcomes related to this Course</b>	<p><b>SO 1.</b> an ability to <u>identify, formulate</u>, and <b>solve complex engineering</b> problems by applying principles of engineering, science, and mathematics, and using <u>modern engineering tools</u>. [ ABET 1]</p> <p><b>SO 2.</b> an ability to apply <u>engineering design</u> to produce solutions that meet specified needs with consideration of <u>public health, safety, and welfare</u>, as well as <u>global, cultural, social, environmental, and economic factors</u>. [ABET 2]</p> <p><b>SO 3.</b> an ability to communicate effectively with a <b>range of audiences</b>. [ABET 3]</p>	

<b>Topics Covered</b>	<b>List of Topics</b>	<b>Related CLOs</b>
	1. Introduction to water resources planning.	CLO1
	2. Water supply.	CLO2
	3. Water demand.	CLO2
	4. Planning process.	CLO2
	5. Decision making techniques.	CLO2 and CLO3
	6. Economic considerations.	CLO2 and CLO3
	7. Social considerations.	CLO2 and CLO3
	8. Legislative considerations	CLO2 and CLO3
	9. Environmental considerations	CLO2 and CLO3
10. Case study: Saudi Arabia ,and project presentation.	CLO3	
<b>Textbook(s) and Other Required Material</b>	1. Dzurik, A. A., & Theriaque, D. A. (2003). Water resources planning. Rowman & Littlefield. 2. Te Chow, V., Maidment, D. R., & Mays, L. W. (1962). Applied hydrology. Journal of Engineering Education, 308, 1959.	
<b>Grading System</b>	Quizzes, Attendance	20%
	Two Midterm Exams	40%
	Final Examination	40%
<b>Instructors</b>	Dr. Ibrahim Elsebaie (2A81), email; elsbaie@ksu.edu.sa	
<b>Date of Review</b>	September 2020	