College of Engineering Department of Civil Engineering



CE 527 Water Resources Planning Credit and 3/3 (Lectures), 0 (Tutorials), 0 (Laboratory) **Contact hours** Required, or Elective Elective Principles and standards for planning water resources; water uses and water supply alternatives; benefit-cost analysis, economic and financial analysis; Course **Description** environmental impact assessment, legal and institutional aspects; elements of project formulation and appraisal, programming water resources investigations. **Prerequisites** or Co-None requisites Students completing this course successfully will be able to: **Related Student Course Learning Outcomes (CLOs)** Outcomes (SO) CLO1. Recognize and explain the main concepts of water resources planning. K1 **SO1** CLO2. Identify the different considerations in planning: economic, social, Course **SO1** legislative, and environmental. K1 Learning CLO3. Determine the water supply and water demand from possible resources **SO2 Outcomes** and for different purposes. S1 SO3 CLO4. Apply the water resources planning concepts on a case study. S2 CLO5. Effectively manage work plans and assigned tasks, and **SO7** assignments for presenting the results on a case study with scientific integrity and ethical responsibilities. V2 SO 1 Recognize advanced engineering knowledge, concepts, and techniques to identify, interpret, and analyze complex and real-life engineering problems. SO 2 Provide solutions for complex and real-life engineering problems through critical thinking Student and the use of modern engineering tools, and identify their impact on social, global, Outcomes cultural, environmental, safety, and economic factors. related to this SO 3 Investigate scientific research problems independently or through teamwork using critical thinking, appropriate techniques, advanced tools, and management principles. Course SO 7 Effectively manage, individually or in groups, specialized tasks and activities in coursework, projects, assignments, and research work with a high level of autonomy and responsibility.

| | List of Topics | Related CLOs |
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| Topics Covered | 1. Introduction to water resources planning. | CLO 1,2 |
| | 2. Water supply. | CLO 2 |
| | 3. Water demand. | CLO 2 |
| | 4. Planning process. | CLO 1,2,3 |
| | 5. Decision making techniques. | CLO 3 |
| | 6. Economic considerations. | CLO 3,4 |
| | 7. Social considerations. | CLO 2,3,4 |
| | 8. Legislative considerations | CLO 2,3,4 |
| | 9. Environmental considerations | CLO 2,3,4 |
| | 10. Case study and project presentation. | CLO 4,5 |
| Textbook(s) and Other Required Material | Grigg, N. S. (1985). Water resources planning. Millenium Development Goals Report 2014 (available online at www.un.org) Mays L.W. and Y.K. Tung, Hydrosystems Engineering and Management, McGraw-Hill, 1992. Dzurik, A. A., & Theriaque, D. A. (2003). Water resources planning. Rowman & Littlefield. The instructor will provide a list of references for the students, as the course contains diverse topics. | |
| Grading System | Quizzes | 5% |
| | Lecture Attendance | 5% |
| | Project work | 30% |
| | Mid-term exam | 20 % |
| | Final Exam | 40 % |
| Instructors | Dr. Faisal Mohammed A Alfaisal | |
| Date of Review | March, 2025 | |