The University of Jordan الجامعة الاردنية
كلية الهندسة - قسم الهندسة المدنية
School of Engineering - Department of Civil Engineering

Course Outline

CE0941562: Water Resources Engineering

Instructor: Prof. Radwan A. Al-Weshah, E-mail: r.weshah@ju.edu.jo (Office C310)

Text Book: Class Notes and Handouts

References:

- Mays, L., *Water Resources Engineering*, 2nd Edition, Wiley 2011
- Bedient P., Wayne C. Huber and Baxter E. Vieux, Hydrology and Floodplain Analysis, 4th Edition, Pearson, 2007.
- Subramanya K., Engineering Hydrology, Third Edition. McGraw Hill, 2009.
- Ministry of Water and Irrigation Jordan (mwi.gov.jo) studies and reports related to Jordan's water sector.
- Arab Water Council Publications (2006-2016).
- Global Water Partnership Website and Publications (2016)

Credits and Time: 3 hours

Prerequisites: 0941464 – Engineering Hydrology

Office Hours: Sun, Tue from12:00-13:00 (or through direct arrangement).

Aim of the Course: The objectives of the course are to:

- Introduce hydrology of surface and groundwater as a water resources supply.
- Develop the principles of integrated water resources management (IWRM).
- Explore the water challenges the Arab region and specifically in Jordan.
- Demonstrate the concept of sustainable water resources management in the Arab Region.

Student Outcomes: At the completion of the course, students should be able to:

- Apply knowledge of mathematics, science, and engineering (ABET outcome a).
- Analyze and interpret data (ABET outcome b).
- Design a system or process to meet desired needs within realistic constraints (ABET outcome c).
- Identify, formulate, and solve engineering problems (ABET outcome e).
- Use the techniques, skills, and modern engineering tools necessary for engineering Practice (ABET outcome k).

Learning Outcomes: At the completion of the course, students should be able to:

- Understand the concepts of surface water and groundwater hydrology
- Understand the concepts water resources management and protection;

- Analyze and understand the tools of IWRM
- Apply IWRM principles and scenarios in the Arab Region and Jordan.

Attendance: Attendance is required. A sign up sheet will be passed around each class period. If the student exceeds the number of absences set by university regulations (15%) he/she will be dropped from the course.

Topics to be Covered	**Estimated Time**
Part 1: **Surface Water and Ground Water Resources Engineering** Principles of Hydrology related to Water Resources Surface Water t Groundwater Applications and Case Studies	6 weeks
Part 2: **Integrated Water Resources Management** Case Studies Modules of IWRM and Tools	4 weeks
Part 3: **Applications and Term Project** Computer Applications and Design Case Studies Term Project Presentations (Each Group 20 min)	6 weeks

Term Project: This course requires a group term project to be prepared presented to the class. Each group of students will choose a topic of relevance to the Jordan or the Arab Region. A one page proposal is required within the first month of classes indicating the group names, topic and tasks to be achieved in sound technical writing style.

Ethical Conduct: Academic honesty and high-caliber conduct are expected from all students without question in this course. Students who are found to have submitted work that was obtained or produced dishonestly will subjected to disciplinary actions. Examples of such work include, but are not limited to: copying, cheating you wrote for someone else or that someone else wrote for you, plagiarism, and tests/quizzes that you took for someone else or that someone else took for you.

Grading System

Term Project	15%
Class Participation and Quizzes	10% (including 5 points bonus)
Midterm Exam	30%
Final Exam	50%
Total	**105%(5 points Bonus!)**

مع أجمل أماني التوفيـــــــق ،،، Good Luck!