UNIVERSITY OF JORDAN
School of Engineering
Chemical Engineering Department

1. **Course Number and Name:** 0915572 Waste Water Treatment

2. **Course Prerequisite:**   0915471 Environmental Engineering

3. **Credits, Contact Hours and Categorization:** 3 Credit hours, 3 Contact hours weekly,

    Elective Engineering course.

4. **Syllabus URL:**   https://elearning.ju.edu.jo/moodle10/course/view.php?id=25477

5. **Instructors Name:**

6. **Textbook:** none

   References:

   1) Ranade, V. and V. Bhandari, Industrial Wastewater Treatment, Recycling and Reuse, Butterworth-Heinemann, 1st Edition, 2014.

   2) Droste, I and R. Gehr. Theory and Practice of Water and Wastewater Treatment, Wiley, 2nd edition, 2018.

   3) Davis, M.L. Water and Wastewater Engineering, 1st Edition, McGraw-Hill, 2010.

   4) Eckenfelder, W. (Jr) Industrial Water Pollution Control, McGraw-Hill, 3rd Edition, 1999.

   5) Course Notes and Handouts

7. **Live Stream Platform**: Microsoft Teams

   Live Stream URL: https://teams.microsoft.com/l/channel/19%3aW9--
zx_ltrrZWXwEB95nRcAKJzToQTcKBx9MlFnnaEI1%40thread.tacv2/General?groupId=f38b6ec6-
58c9-48a1-852b-532684dcef48&tenantId=05405dba-373c-4e20-a30e-3e6fcf507cfe

8. **Specific Course Information:**

   ▪ Catalog Description: Overview of water pollutants. Local and international standards for wastewater quality. Methods of wastewater treatment. Primary, secondary, and tertiary treatment methods for wastewater such as flocculation, settling, flotation, filtration, chemical treatment, biological treatment, sludge treatment and disposal. Membrane separation and adsorption.

   ▪ Prerequisite: 0915471 Environmental Engineering
   ▪ Required or Elective: Department Elective Course

9. **Specific Goals of the Course:**

- Specific Outcomes of Instruction:

1) Be aware of ethical & regulatory issues of wastewater treatment /disposal in relation with sustainability (**O4**)

2) Understand the characteristics of various types of wastewater & their influence on selection /design of treatment systems / processes (**O1, O2**)

3) Understand/ explain the conventional & modern technological options available for wastewater treatment & management (**O2, O4**)

4) Able to analyze and solve design problems for wastewater treatment processes using math, science, and engineering principles (**O1, O2**)

10. **List of Topics to be Covered:**

1) Overview: types, sources, and impacts of wastewater with focus on industrial effluents

2) Regulations and standards pertaining to wastewater management

3) Methods/ technologies of wastewater treatment (physical, chemical, physicochemical, biological)

4) Primary, secondary, and tertiary (advanced) treatment

5) Treatment and disposal by land applications. Reuse of reclaimed wastewater.

Prepared by: *23/09/2025*

ABET Criterion 3 Students Outcomes

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze, and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.