UNIVERSITY OF JORDAN
Faculty of Engineering & Technology
Chemical Engineering Department

0915471 Environmental Engineering
Second Semester 2021/2022

Course Catalog	
(3 Credit Hours) Overview of ecological and environmental systems. Environmental ethics, regulations, and standards. Environmental impact assessment and sustainable development. Water pollution and water quality management. Environmental Microbiology. Selection and design of municipal wastewater treatment systems. Air pollution and meteorology. Climate change and global pollution effects. Sources, effects, control of gas and particulate pollutants. Solid waste management and sanitary landfill design.	
Prerequisite	**0915351 Unit Operations of Particulate Solids**

Textbook	
Davis, M.L. and Cornwell, D.A. Introduction to Environmental Engineering, McGraw-Hill, 5th ed., 2013.	
References	
Books	Peavy, H.S.; D.R. Rowe and G. Tchobanoglous. Environmental Engineering, McGraw-Hill, 1985.
Journals	
Internet links	

Instructor	
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Class Schedule & Room
Lecture Time: S T Th 10:30-11:30 Room: ChE 002
Office Hours

Mapping of Course Objectives to Program Outcomes
1. Appreciate the need to apply chemistry, physics, biology, and math in environmental engineering issues (**O1**)
2. Understand the environmental quality parameters and how to measure and report them as well as the sources and impacts of environmental pollutants (air, water, soil) (**O1**).
3. Be familiar with major environmental laws, regulations, standards, and ethics (**O4**).
4. Select and design basic systems, processes and techniques for water treatment, waste management and pollution control (**O2**).
5. Appreciate the professional role and societal responsibility of Engineers in sustainable development at local, regional, and global levels (**O2, O4**).

Relationship to ABET Criterion 3 * (score out of 5)							
O1	**O2**	**O3**	**O4**	**O5**	**O6**	**O7**	
4	**4**		**3**				

Relationship to Program Educational Objectives**

PEO1	PEO2	PEO3	PEO4
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Topics Covered	
	Chepters in Text
1. Environmental Concepts, Systems & Management Overview	Chapter 1
2. Water Quality Parameters & Standards	Chapter 5
3. Surface and Ground Drinking Water Treatment	Chapter 6
4. Natural Water Pollution & Water Quality Management	Chapter 7
5. Municipal Wastewater Treatment & Sludge Handling	Chapter 8
6. Air Pollution & its Control	Chapter 9
7. Solid Waste Management	Chapter 11

Evaluation		
Assessment Tool	**Expected Due Date**	**Weight**
First Exam	To be announced	20 %
Midterm Exam	According to Department schedule	30 %
Final Exam	According to Registration & Department schedules	50 %

Updated by: Dr. Ahmad M. AbuYaghi Feb 28th, 2022

***An ability to:**

O1: Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

O2: 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.

O3: Communicate effectively with a range of audiences.

O4: 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.

O5: Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

O6: Develop and conduct appropriate experimentation, analyze, and interpret data, and use engineering judgment to draw conclusions.

O7: Acquire and apply new knowledge as needed, using appropriate learning strategies.

****Program Educational Objectives:**

Graduates of the chemical engineering program are expected within a few years of graduation to :

1) Demonstrate their ability to integrate and apply knowledge, skills, professional ethics, and leadership at national, regional and global levels.
2) Demonstrate their ability to work successfully both independently and in team functioning effectively as responsible professionals.
3) Establish themselves as distinguished professionals in industry, academia, and other related fields.
4) Develop themselves in post-graduate studies in chemical engineering or allied fields.