



**The Hashemite University  
Faculty of Engineering  
Civil Engineering Program  
Course Syllabus**



<b>Course Title:</b>	Environmental Enging 3 (2,1, 0)	<b>Course Number:</b>	110401456
<b>Designation:</b>	Compulsory	<b>Prerequisite(s):</b>	110401455
<b>Instructor:</b>	Prof. Ahmed N Bdour	<b>Instructor's e-mail:</b>	bdour@hu.edu.jo
<b>Office Hours:</b>	12:00 – 01:00: Sun. & Tue. 1		
<b>Required Course:</b>	2 hours lectures per week and 2 hrs Lab		

**Course Description (catalog):** is a three-credit lecture, problem set, lab, and exam course. In this course, we'll cover the fundamentals of environmental engineering. These fundamentals will serve you well as a future environmental engineer, a future civil engineer, or in any profession in which the environment is a concern. In the *lectures*, I'll present concepts and applications spanning the whole range of environmental engineering. We'll spend time solving simple versions of problems you'll see in the problem sets.

**Textbook(s) and/or Other Supplementary Materials:**

Mihelcic, Zimmerman: Environmental Engineering: Fundamentals, Sustainability, Design, 2nd Edition

**References:** Introduction to Environmental Engineering by Richard O. Mines and Laura W. Lackey  
Prentice Hall, 2009

Masters, Introduction to Environmental Engineering and Science, Prentice- Hall

**Major Topics Covered:**

Topic		No. of Weeks	Contact hours*
Chapter 1	Introduction	2	4
Chapter 3	Environmental Physics	1	2
Chapter 2	Chemical and biological water quality parameters	2	4
Chapter 4	Environmental Chemistry In biological systems Chemistry of Pollutants	1	2
Chapter 5	Environmental Biology	2	4
Chapter 7	Solid waste management	2	4
Chapter 6, Chapter 8	Environmental Risk Assessment	2	4
Chapter 9	Environmental Engineering Ethics	2	4
Chapter 10	Membrane Processes	1	2

\*Contact hours include lectures, quizzes and exams

10:00 – 11:00: Sun. & Tue.

Lab: Sun, Mon. Wed., 02:00-04:00

**Specific Outcomes of Instruction (Course Learning Outcomes):**

After completing the course, the student will be able to:

1. Excel in the engineering practice, research, and management associated with the protection and conservation of ecological and human health.. (a, e)
2. Play key roles in the analysis of the behavior of complex natural and engineered environmental systems, and design infrastructure in a sustainable way to meet societal needs. (c, e)
3. Apply their knowledge creatively and innovatively throughout their careers to meet the challenges posed by a rapidly changing world. (a, c)



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4. Think critically, behave ethically, and consider the technical and social consequences of their work, especially as it affects the health, safety, and environment of both ecological and human communities.(f)

**Student Outcomes (SO) Addressed by the Course:**

#	Outcome Description	Contribution
<b>General Engineering Student Outcomes</b>		
(a)	an ability to apply knowledge of mathematics, science, and engineering	H
(b)	an ability to design and conduct experiments, as well as to analyze and interpret data	
(c)	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	M
(d)	an ability to function on multidisciplinary teams	
(e)	an ability to identify, formulate, and solve engineering problems	H
(f)	an understanding of professional and ethical responsibility	M
(g)	an ability to communicate effectively	
(h)	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
(i)	a recognition of the need for, and an ability to engage in life-long learning	
(j)	a knowledge of contemporary issues	
(k)	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	
<b>H=High, M= Medium, L=Low</b>		

**Grading Plan:**

Midterm (Theory)	Exam	30 Points
Midterm (Lab)	Exam	10 points
Lab Reports		10 points
Final exam (Theory)		40 Points
Final exam (Lab)		10 Points

**General Notes:** Many aspects of the course will receive on-going, real-time assessments and feedback to help improve students' performance. This will be done by discussing performance in class and by arranging individual meetings.

**Prepared by:** *Prof. Ahmed N. Edour*

**Date:** 30 Jan. 2018