

**DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE SYLLABUS**

<i>COURSE TITLE</i>	<i>ENGLISH CODE/NO</i>	<i>ARABIC CODE/NO.</i>	<i>CREDITS</i>			
			<i>Th.</i>	<i>Pr.</i>	<i>Tr.</i>	<i>Total</i>
Industrial Environmental Engineering	IE 443	هـ ص ٤٤٣	3	1	-	3
<i>Pre-requisites:</i>	IE 342					
<i>Course Role in Curriculum</i>	<i>Required or Elective:</i>		Elective			
<i>Catalogue Description:</i> Basics of natural systems. Industrial environment as part of the ecological system. Water quality management. Waste water treatment. Air pollution. Noise pollution. Solid waste management. Hazardous waste management. Ionizing radiation. Case studies.						
<i>Textbooks:</i> PRINCIPLES OF ENVIRONMENTAL ENGINEERING AND SCIENCE , 1/e, Davis, M.L., Masten, S.J., (2004), McGraw-Hill						
<i>References:</i> I HANDBOOK OF ENVIRONMENTAL HEALTH , Vols I & II, 4/e, Koren, H., Bisesi, M., (2002), CRC Press.						
<i>Supplemental Materials:</i>						
<i>Course Learning Outcomes:</i> <u>By the completion of the course the student should be able to:</u>						
<ol style="list-style-type: none"> 1. Anticipate the impact of natural and man-made factors on the ecosystem and on human health, activity and productivity. 2. Anticipate and recognize environmental hazards arising from or during human activities. 3. Evaluate environmental hazards and assess risks. 4. Solve environmental and human activities problems, eliminate hazards and abate and control environmental hazards. 5. Communicate with governmental agencies, industry and community for solving environmental problems (case studies). 						
<i>Topics to be Covered:</i>						<i>Duration in Weeks</i>
1	Introduction to environmental engineering and science					0.5
2	Environmental legislation, regulation and ethics					0.5
3	Basics of natural systems					0.5
4	Industrial environment as a part of ecological system					0.5

5	Risk assessment and management	0.5
6	Materials and energy balances	0.5
7	Water quality management	1.5
8	Water treatment	1
9	Waste water treatment	1.5
10	Air pollution	1.5
11	Air pollution control	1.5
12	Solid waste management	1
13	Hazardous waste management	1
14	Noise pollution	1
15	Ionizing radiation	1

Student Outcomes addressed by the course: (Put a \checkmark sign)

(a)	an ability to apply knowledge of mathematics, science, and engineering	\checkmark
(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	
(d)	an ability to function on multidisciplinary teams	
(e)	an ability to identify, formulate, and solve engineering problems	\checkmark
(f)	an understanding of professional and ethical responsibility	
(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	\checkmark
(i)	a recognition of the need for, and an ability to engage in life-long learning	
(j)	a knowledge of contemporary issues	\checkmark
(k)	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	

Key Student Outcomes assessed in the course: () and ()

Instructor or course coordinator: Dr. Mohamed Abdel-Monaem Zytoon

Last updated: Jan. 2014