

**DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE SYLLABUS**

<i>COURSE TITLE</i>	<i>ENGLISH CODE/NO</i>	<i>ARABIC CODE/N O.</i>	<i>CREDITS</i>			
			<i>Th.</i>	<i>Pr.</i>	<i>Tr.</i>	<i>Total</i>
Industrial Safety Engineering	IE 442	هـ ص ٤٤٢	3	1	3	3
<i>Pre-requisites:</i>	IE342					
<i>Course Role in Curriculum</i>	<i>Required or Elective:</i>		Elective			
<i>Catalogue Description:</i> Occupational exposure: permissible levels and legal aspects. Hazards' anticipation and recognition. Physical hazards particularly heat, noise and vibration, light, non-ionizing and ionizing radiations: assessment and control. Chemical agents: assessment and control. Industrial ventilation. Design of local exhaust systems.						
<i>Textbooks:</i> Kerry Gardiner and J. Malcolm Harrington (Editors), Occupational Hygiene, 3/e, Blackwell, Massachusetts, 2005						
<i>Supplemental Materials:</i> Instructor notes						
<i>Course Learning Outcomes:</i> <i>By the completion of the course the student should be able to:</i>						
<ol style="list-style-type: none"> 1. Anticipate and recognize occupational health hazards. 2. Evaluate occupational health hazards and conduct risk assessments. 3. Identify the optimum control methods of occupational health hazards. 4. Design a ventilation system to control workplace air quality. 						
<i>Topics to be Covered:</i>						<i>Duration in Weeks</i>
1	Introduction to industrial hygiene and workplace hazards (1 class)					0.5
2	Toxicology (2 classes)					1.0
3	The effects of inhaled materials on the lung and other target organs (1 class)					0.5
4	The effects of some physical agents (2 classes)					1.0
5	The nature and properties of workplace airborne contaminants (1 class)					0.5
6	Principles of Risk Assessment (2 classes)					1.0
7	Hazard Communication and Occupational Exposure Limits (2 classes)					1.0
8	The sampling of aerosols (2 classes)					1.0
9	The sampling of gases and vapors (2 classes)					1.0

10	Noise (4 classes)	2.0
11	The thermal environment (4 classes)	2.0
12	Ionizing and non-ionizing radiation (2 classes)	1.0
13	Industrial ventilation (4 classes)	2.0

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

(a)	an ability to apply knowledge of mathematics, science, and engineering	
(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	√
(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	√
(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.	√

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

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

Last updated: September 2014