KOMAR UNIVERSITY OF SCIENCE AND TECHNOLOGY
(KUST)

Health, Safety and Environment Course Syllabus			
Course Title	Health, Safety and Environment (HSE)		
Course Code	NVE3325	**No. of Credits**	3
Department	Environmental and Civil engineering Department	**College**	Engineering
Pre-requisites Course Code		**Co-requisites Course Code**	NVE3320C
Course Coordinator(s)	Twana A. Tahir		
Email	twana.abdulrazaq@Komar.edu.iq	**Mob No.**	-
Other Course Teacher(s)/Tutor(s)	None		
Class Hours	**Section One: Sunday & Thursday (10:00 - 11:30)** **Section Two: Sunday & Thursday (14:00 - 15:30)**		
Office Hours	Monday and Tuesday (14:00-16:00)		
Course Type	Departmental requirements		
Offer in Academic Year	Spring 2016		

COURSE DESCRIPTION

This course explores the relationship of people to their environment and how it affects their physical well-being, and what they can do to protect and enhance their health, and to influence the quality of the environment. This course is a survey course intended to give students a basic understanding of how Environmental factors impact the health of people and the community, and of the efforts made to prevent or minimize the effects of negative impacts. This course provides basic information on the concept of HSE (Health, Safety and Environment) that needs to be applied by the students and employees in order to have a safe working environment. This course will focus on how to identify the hazard, analyze the risk and how to apply the proper solution for it.

COURSE OBJECTIVES

The purposes of this course are to:

1. Familiarize the students with the meaning of risk, hazards, accidents, damage and the relation between them.
2. Ensure that the students have the fundamental knowledge of hazards in the laboratory, and in the different workplaces.
3. Identify the source and the effect of hazards on human health and environment if safety regulations have not been put on place.
4. Teach the students how to apply safety regulations correctly in the industry and in the laboratory.
5. Help the students to fill risk assessment form and COSHH form. (Note: 'COSHH' stands for Control Of Substance Hazards to Health).

COURSE LEARNING OUTCOMES

After completing this course, the students will be able to:

1. **Understanding the concept of HSE and its importance for the safety workplace:**
   - Identify the hazardous materials that can harm the human health in the working place [**e** and **f**].
2. **Applying international safety procedure and policy to minimize the workplace accident:**
   - Apply Health and safety regulations in different fields. [**e**].
   - Apply risk assessment policy and fill the HIRARC forms before starting the work in any place [**I**].
   - Use hazard prevention and control techniques used in the developed countries to avoid the damages and life losses (PPE) [**f**].
3. **Analyze the risk and interpret the data in order to install a proper risk control.**
   - Analyzing the risk and applying proper solution to avoid the risk. [**K**].

GUIDELINES ON GRADING POLICY

A	95-100%	**C**	70-74%
A-	94-90%	**C-**	**65-69%**
B+	87-89%	**D+**	60-64%
B	83-86%	**D**	55-59%
B-	80-82%	**D-**	50-54%
C+	75-79%	**F**	0-49%
W	Withdrawal	**I**	Incomplete

Note: Passing Grade is 65% and above

COURSE CONTENT

Course topics include:

- Introduction to HSE
- Occupational hazards
- Recognizing chemical hazards
- Recognizing biological hazards
- Equipment and energy hazards
- Environmental hazards
- Risk assessment and risk analysis
- Hearing, noise, fire and explosion hazards
- Hazards control

COURSE TEACHING AND LEARNING ACTIVITIES

This course will be carried out in 3 hours and twice per week. The semester has 15-instructional weeks followed by one week of exam. Course instructor will:

- Utilize power point presentation to present the course information.
- The board space to solve problems with students.
- There will be in class group work, where student will do in class exercises and turn the assignment to the instructor.

COURSE ASSESSMENT TOOLS

Assessment Tool	Description	Weight
Quizzes	Three Quizzes are scheduled and cover different topics	**10%**
Mid-term Exam	The mid-term exam will be conducted after week 7 of the semester. It will cover the first half of the semester.	**20%**
POPBL (Problem Oriented Project Based Learning)	The project will be a group project; students will choose a title (case study) and collect the data about it. There will be two presentations as scheduled in the class schedule. The first presentation will cover the title, problem statement and Methodology of how to conduct the project. In the second presentation, students will present their findings.	**15%**
Test	The test will be conducted after week 10 of the semester. It will cover part of the second half of the course.	**15%**
Field Trip	This includes a visit to a nearby factory to apply what have been studied in this course, regarding health and safety regulations, in real situations. Also, The students need to write and submit a technical report for their visit.	**10%**
Final Exam	The final exam will be designed to cover all the students' learning outcomes for this course, the exam will be closed book except the property tables that will be provided by the instructor	**30%**

Assessment Tools	CLOs	Weight
Quizzes	**CLO (1)**	**10%**
Mid-term Exam	**CLO (2)**	**20%**
POPBL (Problem Oriented Project Based Learning)	**CLO (3)**	**15%**
Test	**CLO (1,2 and 3)**	**5%, 5% and 5%**
Field Trip	**CLO (1)**	**10%**
Final Exam	**CLO (1,2 and 3)**	**5%, 5% and 20%**

Textbooks:

Allport, D. C., Gilbert, D. S., & Outterside, S. M. (Eds.). (2003). *MDI and TDI: safety, health and the environment: a source book and practical guide*. John Wiley & Sons.

References:

1. Hale, Andrew R., and J. Hovden. "Management and culture: the third age of safety. A review of approaches to organizational aspects of safety, health and environment." *Occupational injury: Risk, prevention and intervention* (1998): 129-165.

2. Harms-Ringdahl, Lars, Tommy Jansson, and Yngve Malmén. "Safety, health and environment in small process plants—results from a European survey."*Journal of Safety Research* 31.2 (2000): 71-80.

COURSE POLICY *(including plagiarism, academic honesty, attendance etc)*

KUST Academic Policy
http://sar.komar.edu.iq/files/Student%20hand%20Book%202013.pdf

Attendance Policy:
Students are expected to attend each class for the entire semester. Students are responsible for material present in lectures. Only students with official KUST absence, family crises, and illness are excused from class. Three occasions of lateness count as one absence. The student who misses 10 percent of the classes will be placed on probation.

Make up Policy:
Since all examination are announced in advance, ZERO grade will be given to any missed examination unless a student's has an acceptable reason, such as illness, for not being able to take the examination during all those days when the examination was announced.

Academic Dishonesty:
Any type of dishonesty (Plagiarism, Copying another's test or home-work, etc) will Not be tolerated. Students found guilty of any type of academic dishonesty are subject to failure in this course, plus further punishment by the University Council.

GUIDELINES FOR SUCCESS

1. Read and strive to understand (e.g. re-read, ponder) the materials assigned.
2. Illustrate interest and dedication to the course activities and deliverables.
3. Participate and respond to the instructor feedback sessions.
4. Strive to improve self-assessment, critical thinking and lifelong learning skills.
5. Complete course preparations and deliverables.
6. Be able to work independently and in a group.

7. Extend your knowledge beyond the given textbooks in order to master the subject, and
8. Try not to miss the classes.

Course Schedule (Spring 2016)

Week	Beg./End Dates	Topics (Chapters)	Assessment Tool	CLOs
1	Sunday Feb 28th Thursday March 3rd	Introduction to health, safety and environment • Basic Terminology • Reasons for preventing accidents • Types of accidents • Accident investigation process • Audit Check-list		1
2	Sunday March 6th Thursday March 10th	Risk Assessment and Risk Management: • Hazard identification (HAZOP survey) • Hazard Identification (Risk Assessment and Risk Control (HIRARC Form) • Computing the incidence and severity rates	**The Title of POPBL should be announced for each group.**	2
3	Sunday March 13th Thursday March 17th	Dose-Exposure calculation POPBL preparation (Sharing POPBL Sample)	**Quiz #1**	2
	March 20th to 24th	**Nawroz Holiday**		
4	Sunday March 27th Thursday March 31st	Occupational hazards in the workplace • Types of occupational hazards Ergonomic Hazards • Results of Poor Ergonomic Design • Primary & secondary risk factors • Controlling Hazards		3
5	Sunday April 3rd Thursday April 7th	Psychosocial hazards • The Cost of a poor Psychosocial Work Environment Classification of PSYCHOLOGICAL hazard		1

		Mechanical hazards • Types of mechanical hazards • Controls for mechanical hazards		
6	Sunday April 10th	**First POPBL presentation**		**3**
	Thursday April 14th	Industrial hazards • Routes of Industrial hazards Entry into the Body • Types of Hazards Toxicity • Treatment strategies		**1**
7	Sunday April 17th	Physical Hazards • Source of noise • Physics of sound • Harmful effect of noise • Abnormal temperature	**Quiz #2**	**1**
	Thursday April 21st			
	April 22nd – 28th 2016	**Mid-Term exam**		**2**
8	Sunday May 1st	Chemical hazards • Nature of chemicals • Effects of chemical materials • MSDS form • Measurement of toxic substances		2
	Thursday May 5th			
9	Sunday May 8th	Biological hazards • Factor affecting infection and exposure • Classification of biohazards • Biological agents		1
	Thursday May 12th			
10	Sunday May 15th	Dust fire and explosion hazards • DUSTS EXPLOSION • Fire and explosion risks • Controls for dust, fire and explosion	**Test**	**1,2 and 3**
	Thursday May 19th	**Test (15%)**		
11	Sunday May 22nd	**Filed Trip**		1
	Thursday May 26th	Environmental hazards • Natural phenomena • Human Activities Controlling environmental hazards: goal of reducing risk to human life and health		

12	Sunday May 29th	**Second POPBL presentation**		**3**
	Thursday June 2nd	Lab safety • General hazards in the lab • Risk assessment • COSHH Form		**2**
13	Sunday June 5th Thursday June 9th	Hazards prevention and control • Hazard control-engineering • Hazard control-administrative • Preventive Maintenance • Occupational Health Program	**Quiz #3**	**1**
14	Sunday June 12th Thursday June 16th	Personal Protective Equipment (PPE) • Eye & Face Protection • Head Protection • Hand Protection • Foot Protection • Body Protection	**Filed trip report submission**	**2**
15	June 19th -23rd 2016	**REVIEW WEEK**		
16	June 24th - 30th 2016	**FINAL EXAMINATION**		**1,2 and 3**