

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Environmental Pollution & industrial safety		Module Delivery	
Module Type	C		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code				
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	UGII	Semester of Delivery		
Administering Department	Fuel and Energy Techniques Engineering	College	Engineering Technical College- Baghdad	
Module Leader	Dr. Ali Ahmed Ghaney		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification		
Module Tutor			e-mail	
Peer Reviewer Name	No	e-mail		
Scientific Committee Approval Date		Version Number	1.0	

Relation with other Modulesالعلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. To know the environment, chief elements of the environment and environmental pollution. 2. To know the types of pollutants in air, water, and earth's crust. 3. To the knowledge of the methods for treatment and controlling for pollution of water, air, and soil. 4. To the knowledge of the radioactive pollution. 5. To know of the environmental pollution resulting from the oil and gas industries 6. Identify hazards at the workplace (Hazard Identification and Risk Assessment). 7. Use appropriate personal protective equipment for the work. 8. Calculate the amount of toxic release due to vessel failure. 9. Lay out a good safety management system at the workplace. 10. Determine ways of preventing electrical and mechanical hazards. 11. Identify hazards related to oil and gas industries.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The student able to: 1. To know environmental pollution, the chief of elements of the environment, and knowledge of the types of pollution and pollutants. 2. To know the water pollution, understand the pollution caused by wastewater, and how to control and treat processes of it. 3. Understand air pollution, emissions from the oil and gas industry, and identify solutions to air pollution. 4. To the knowledge of the sources and types of solid waste. 5. To know of the radioactive pollution: sources, and control. 6. To know what kind of damage of oil and gas pollution cause. 7. To the knowledge of the occupational health safety and purposes of the industrial hygiene program, elements of the work environment, industrial safety means, the important definitions of occupational health safety, and understand the difference between risk and hazard. 8. To the knowledge of OSHA (Occupational Safety and Health Administration). 9. To know the risk management process. 10. To the knowledge of the material safety data sheet. 11. To know for estimated dose for ionizing radiation. 12. To the knowledge of the hazards related to oil and gas industries

Indicative Contents المحتويات الإرشادية	Indicative content includes the following: 1. Introduction of the elements of the environment, knowledge of the environmental pollution and the knowledge of the types for pollution and pollutants. (4 hr) 2. Choice of the appropriate of methods for treatment for wastewater. (4 hr) 3. To know who to solutions and controlling for air pollution. (4 hr) 4. To the knowledge of the sources for radioactive pollution. (4 hr) 5. To know for kind of the sources and types of solid waste. (4 hr) 6. To the knowledge of the environmental pollution resulting from the oil and gas industries. (4 hr) 7. Introduction of occupational health safety and know the important of occupational health safety, and the knowledge of elements for the work environment. (4 hr) 8. To know about OSHA (Occupational Safety and Health Administration). (4 hr) 9. To know who to solutions and control for risks and hazards. (4 hr) 10. To know a good safety management system at the workplace. (4 hr) 11. To the knowledge of estimated dose for ionizing radiation. (4 hr) 12. To know hazards related to the oil and gas industries. (4 hr)
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Assessment is based on hand-in assignments, written exam, quizzes, seminars, and Online testing.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	150	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	120		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	5	5% (5)	3, 6, 9, 12	
	Assignments	5	5% (5)	6, 12	
	Projects / Lab.	0	0% (0)	-	
	Report	0	0% (0)	-	
	Midterm Exam	2 hr	40% (40)	7	

Summative assessment	Final Exam	2hr	50% (50)	15	
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to environmental pollution, elements of environment and pollution and pollutants
Week 2	Sources of water pollution, some control and treatment processes of wastewater.
Week 3-4	Sources of Air Pollution
Week 5	Solid waste: Sources, types and management
Week 6	Radioactive Pollution: sources, and control.
Week 7	Environmental Pollution Resulting from the Oil and Gas industries
Week 8	Introduction to Occupational Health Safety and Hygiene.
Week 9	Rights and Responsibilities under OSHA (Occupational Safety and Health Administration) Law.
Week 10	Risk Management Process.
Week 11	Material Safety Data Sheet.
Week 12	Major Pathways of Human Exposure to Environmental Contaminants.
Week 14	Estimated Dose for Ionizing Radiation: Equations and Examples.
Week 14	Hazards Related to Oil and Gas Industries and Hazards control/ Personal Protective Equipment's.
Week 15	Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	- Ruth F. Weiner and Robin A. Matthews, 2003, "Environmental Engineering", 4th edition. - P. Aarne Vesilind, J. Jeffrey Peirce, Ruth F. Weiner, 1994, "Environmental Engineering". - American Public Health Association, American Water Works Association, Water Environment Federation. Standard, 2023 "Methods for the Examination of Water and Wastewater", 24th Edition. - Swapan Kumar Hazra, Samar Biswas, 2021, "Fundamentals of Process Safety Engineering". - Daniel A. Crowl. Joseph F. Louvar, 2019, "Chemical Process Safety fundamentals with applications", 4th edition.	no
Recommended Texts	- P. Aarne Vesilind, Susan M. Morgan, Lauren G. Heine, 2009, "Introduction to Environmental Engineering". - American Institute of Chemical Engineers, 2022, "Process Safety for Engineers: An Introduction", 2nd edition.	no
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.