



"COURSE PORTFOLIO"

Module Information معلومات المادة الدراسية			
Module Title	اخلاقيات مهنة		Module Delivery
Module Type	S		☐ Theory ☒ Lecture ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	QEPE3610		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1	Semester	1
Department	Environmental Health	College	Environmental Sciences
Module Leader	سليمة هادي موسى	E-mail	Salema@environ.uoqasim.edu.iq
Module Leader's Acad. Title	استاذ مساعد	Module Leader's Qualification	ماجستير
Module Tutor		e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	06/06/2023	Version Number	1.0

Student Workload (SWL): Structured SWL (h/w) (Two contact hours of lectures + Two hours of seminars) + Unstructured SWL (h/w) .

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	2.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Relation with other Modules:-



Relation with other Modules			
العلاقة 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	
COURSE DESCRIPTION: وصف المنهاج	يركز هذا المقرر على المبادئ الأساسية لمفهوم أخلاقيات المهنة
Module Aims أهداف المادة الدراسية	The goal of this course is to develop basic skills and knowledge to raise issues associated with the Analytical Chemistry
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- ان يتمكن الطالب من تعريف المفاهيم الخاصة بحقوق الانسان والديمقراطية 2- ان يتمكن الطالب من وصف المبادئ الخاصة بالديمقراطية وحقوق الانسان 3- أن يكتسب الطالب المعلومات والدراية الكافية حول الممارسات الديمقراطية 4- ان يتمكن الطالب من معرفة اهم القواعد المتعلقة بعمل الانظمة النيابية 5- ان يتمكن الطالب من التعرف على اهم الاساليب الديمقراطية الحديثة في الحكم
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1- د. ماهر صالح علاوي، رعد ناجي الجدة، رياض عزيز هادي وآخرون، حقوق الانسان والطفل والديمقراطية، جامعة تكريت، 2013، ط2.

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	د. حامد الشباوي	No
Recommended Texts		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.

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
1-2	2	مفهوم اخلاقيات المهنة	ان يتعلم الطالب على المفاهيم المذكورة بصورة عامة
3-4	2	اهمية اخلاقيات المهنة في العمل	ان يعرف الطالب بداية ظهور هذا المفهوم وكيف تطور حتى الوقت الحاضر
5-6	2	تطبيقات اخلاقيات المهنة	يتعرف الطالب على مدى وجود فكرة الاخلاقيات في فترة العصور الوسطى
7-8	2	اخلاقيات المهنة في العمل	يتعلم الطالب معنى الاخلاقيات ومبادئها وخصائصها ومميزاتها
9-10	2	جوانب من اهمية اخلاقيات المهنة	يكتسب الطالب الدراية الكاملة حول انواع الاخلاقيات



			المتعارف عليها في الانظمة السياسية
11-12	2	اهداف اخلاقيات المهنة	يتمكن الطالب من معرفة اهمية اخلاقيات المهنة وما الهدف من تعلمها وماهي اهم خصائصها
13-14	2	مسؤولية اخلاقيات المهنة	يتمكن الطالب من معرفة مصادر اخلاقيات المهنة التي يتم الرجوع اليها ،سواء على المستوى المحلي ام الدولي والضمانات التي يجب توافرها من اجل حماية حقوق الافراد على الصعيدين الداخلي والدولي
14-15	2	الاخلاق والشخصية	يتمكن الطالب من معرفة الدور الذي يمكن ان تلعبه المنظمات الدولية في اخلاقيات المهنة
Final Exam			

Module Evaluation:-

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment (40%)	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments & H.W.	2	10% (10)	2, 12	LO # 3, 4, 6, and 8
	Projects / Lab.	1	10% (10)	Continuous	
	Seminar	1	10% (10)	14	
	Field Visits Report				
	Discussions During Lectures	10		Continuous	ALL

Ministry of Higher Education and Scientific Research

Al-Qasim Green University/ College of Environmental Sciences

Environmental Pollution Department



Summative assessment	Midterm Exam (10%)	1hr	10% (10)	8	LO # 1-15
	Final Exam (50%)	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Ecotoxicology or environmental toxin		Module Delivery	
Module Type	core		☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	QEPE3526			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGII	Semester of Delivery		5
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	May Hameed Mohammad		e-mail	Mayhameed85@enviro.uoqasim.edu.iq
Module Leader's Acad. Title	Assistant Professor		Module Leader's Qualification	master
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date	25/8/2026		Version Number	1.0

Relation with other Modules			
العلاقة 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 Objectives أهداف المادة الدراسية	1- explain the history of ecotoxicology 2-Identifying the sources of environmental toxins 3-explain kinetics and dynamics of toxins 4- Defining the general Methods of Routes of entering toxin into the human body 5- explain Movement of poisons inside human body 6. determine the Pathways of poisons in environment 7-Defining the Poisoning from Industrial pollutants 8-Explain how can pesticides work as poison 9- identify the important natural materials that found in environment and work as toxic compounds 10- identify the important materials that can found in domestic place and act as poison 11- Defining the specific species of plant and animals that contributed to human poisoning from ancient of time 12- Explaining the toxic effect of Hydrogen sulfide and CO on human life 13- explain how can drugs and medicines be toxic to organisms 14- Introduction to the toxicity and type of alcohol 15- explain The mechanisms of the toxic substance effect on tissues and organs
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The student must have a basic understanding of the history of toxicology. 2. The student must be familiar with the sources of environmental toxins. 3. The student must be able to explain kinetics and dynamics of toxins 4. The student must be able to list the important routes of entry into the body. 5. the student must be explained how the poison movement inside the human body 6. the student must be explained the pathways of poison in environment 7. The student must be fully aware of the most important toxins from various industrial sources. 8. The student explains how pesticides can cause toxic effects. 9. The student must identify natural toxins found in the environment. 10. The student must know the methods and substances that can be toxic in the home environment. 11. The student must identify animals and plants that can be toxic in the environment. 12. The student must identify the routes, sources, and effects of exposure to hydrogen sulphide and carbon monoxide. 13. The student must distinguish between a toxic dose and a healthy dose and drugs 14. The student explains the effects of alcohol overdose and the dangers it can cause. 15. The student must understand how a toxic substance can affect the blood ,digestive system , respiratory and nervous systems.
Indicative Contents المحتويات الإرشادية	The Core Curriculum topics may be covered by asynchronous self-directed learning, synchronous virtual learning, face to face tuition, or a blend of these three learning modalities. <u>The Core Curriculum for Module 1:</u> - History of ecotoxicology - Sources of environmental toxins - kinetics and dynamics of toxins - Routes of entering toxin into the human body - Movement of poisons inside human body



6. Pathways of poisons in environment
7. Poisoning from Industrial pollutants
8. Pesticide poisoning
9. Natural toxins in the environment
10. poisoning in Domestic environments
11. Toxin producing organisms
12. Hydrogen sulfide and Carbon monoxide poisoning
13. Drug and medicine poisoning
14. Alcohol poisoning
15. The mechanisms of the toxic substance effect on tissues and organs

The Core Curriculum for Module 2:

1. The student writes an essay on the history of environmental toxicology.
2. The student explains, through a poster, the most important sources of toxins.
3. the student writes a report on kinetics and dynamics of toxins
4. The student creates a poster illustrating the most important ways toxins enter the body.
5. The student writes a report on cases of poisoning in industrial settings.
6. The student discusses the distribution of pesticides among living organisms and their effects.
7. The student writes a report on the most common natural toxins found in the environment.
8. The student gives a presentation on the most important toxins that can be found in the home environment.
9. The student gives a visual presentation of the most important toxic animals and plants in their environment.
10. The student presents a poster illustrating the most important compounds can cause toxicity in Domestic environments
11. The student writes a report on most organisms that can producing toxin
12. The student explains, through a poster, hydrogen carbon monoxide poisoning.
13. The student submits an essay on drugs and medicines, their types, and their dangers.
14. The student presents a presentation on the effects of alcohol poisoning.
15. The student presents a poster illustrating the most important tissues and organs that affected by toxins.

The Core Curriculum for Module 3:

1. Remind that toxicology is one of the oldest sciences in human history.
2. Identify the most important sources of toxins in environment.
3. find ways to control transformation of toxin
4. Find ways to control and prevent toxins from entering the body.
5. control the toxicity of toxin in body
6. control the movement of toxin in environment
7. Remind the student of the potential dangers emanating from industrial environments of all kinds.
8. Find ways to determine the optimal use of pesticides to avoid their risks.
9. Explore the environment and identify natural sources of toxins.
10. Monitor sources and cases of poisoning that may originate in the home environment.
11. Identify the most important species of animals and plants that are naturally toxic.
12. Find ways to treat or control hydrogen sulphide and carbon monoxide release.
13. Find ways to limit using drugs and medicines with remind students of their dangers.
14. Warning against excessive alcohol consumption.



	15. Find ways to protect the blood, nervous , respiratory systems and essential organs from the effects of toxins.
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This program enables students to research and investigate types of toxic substances and their natural sources, as well as identify dangerous plants and animals that secrete toxins, and how to minimize this risk as much as possible. It also enables students to distinguish between substances they handle in different natural and industrial environments, and how to handle them and reduce their harm and toxicity to the natural environment and other living organisms. Furthermore, it enables students to understand the risks of what they handle daily or in the workplace, its toxic effects on the environment and society, and the consequences of those effects.

Student Workload (SWL) الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	79	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	46	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2/8	10% (10)	3, 5, 6,8,9,10,11,13	LO #1- #14
	Assignments	2/8	10% (10)	3, 5, 6,8,9,10,11,13	LO #1 - #14
	Projects / Lab.	1/2	10% (10)	8, 13	LO #1 - #14
	Report	6/2	10% (10)	3,4, 6, 8, 10,13	LO #1- #13
Summative assessment	Midterm Exam	4hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



COURSE SCHEDULE:-

weeks	hours	Topics Covered	Learning Outcomes
1	5	History of ecotoxicology + Laboratory guide for toxicity tests and safety	Known the history of toxic science + learning about how use laboratory in save situation
2	5	Sources of environmental toxins + Types of Toxicity	Known the ancient sources of toxin + known the types of toxicity in laboratory
3	5	kinetics and dynamics of toxins + Types of Doses	Define the toxicokinetics and toxicodynamics + known about the type of doses test and how can be used
4	5	Routes of entering toxin into the human body + Dose-toxicity relationship	Discission the methods that used by toxic materials to enter the body + showed the relation between toxicity and doses
5	5	Movement of poisons inside human body + Toxicity of chemical pesticides	Find how the poison can move inside the human body + tested the toxicity of pesticide on organisms
6	5	Pathways of poisons in environment + Poisonous plants: (tobacco leaves plant: nicotine)	Find how the poison can move inside the environment + tested the toxicity of nicotine and how can extraction from plant
7	5	Poisoning from Industrial pollutants + Persistent organic pollutants (POPs)	shown the important toxic material from industries + known how can distinguished and regognized POP
8	5	Pesticide poisoning + Poisonous plants: (seeds plant: castor bean)	explain how can pesticide be toxic and their types + tested the toxicity of castor bean and how can extracted
9	5	Natural toxins in the environment + Toxicity of heavy metals	poison and define the important toxin that can be find naturally + tested the toxicity of some heavy metals on organisms
10	5	poisoning in Domestic environments + microplastic toxicity	known the toxic materials that found in domestic places + tested the microplastic on organisms and how can extracted
11	5	Toxin producing organisms + Chemical toxins: hydrocarbons	and shown the important organisms that define as dangerous to human in environment + tested the toxicity of some kind of hydrocarbons on organisms and their effect and types



12	5	Hydrogen sulfide and Carbon monoxide poisoning + Phycotoxin : algal toxins	Discussion the source and effect of hydrogen sulphide and CO on human life + tested the toxicity of some type of algae on organisms
13	5	Drug and medicine poisoning + Mycotoxin : Fungal toxins	Show dangerous of drugs and effect of unsuitable and over doses medicines on human + detection of some fungal toxicity
14	5	Alcohol poisoning + Domestic toxins: detergents	Show types and dangerous of over doses of alcohol + tested the toxicity of some detergents on organisms
15	5	The mechanisms of the toxic substance effect on tissues and organs + Agricultural toxins: chemical fertilizers	Showed the mechanism of toxin on blood, digestive system, respiratory system and nervous systems + tested the toxicity of some type of fertilizers on organisms
Final Exam			

Delivery Plan (Weekly Syllabus)

المناهج الاسبوعي النظري

	Material Covered
Week 1	History of ecotoxicology
Week 2	Sources of environmental toxins
Week 3	kinetics and dynamics of toxins
Week 4	Routes of entering toxin into the human body
Week 5	Movement of poisons in human body
Week 6	Pathways of poisons in environment
Week 7	Poisoning from Industrial pollutants
Week 8	Pesticide poisoning
Week 9	Natural toxins in the environment
Week 10	poisoning in Domestic environments
Week 11	Environmental Toxin producing organisms
Week 12	Hydrogen sulfide and Carbon monoxide poisoning
Week 13	Drug and medicine poisoning
Week 14	Alcohol poisoning
Week 15	The mechanisms of the toxic substance effect on tissues and organs
Week 16	



Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Laboratory guide for toxicity tests and safety
Week 2	Types of Toxicity
Week 3	Types of Doses
Week 4	Dose-toxicity relationship
Week 5	Toxicity of chemical pesticides
Week 6	Poisonous plants: (tobacco leaves plant: nicotine)
Week 7	Persistent organic pollutants (POPs)
Week 8	Poisonous plants: (seeds plant: castor bean)
Week 9	Toxicity of heavy metals
Week 10	microplastic toxicity
Week 11	Chemical toxins: hydrocarbons
Week 12	Phycotoxin : algal toxins
Week 13	Mycotoxin : Fungal toxins
Week 14	Domestic toxins: detergents
Week 15	Agricultural toxins: chemical fertilizers

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	القماز , سمير غازي. (2003). علم السموم. الطبعة الاولى , مكتبة المجتمع العربي للنشر ودار صفاء للنشر والتوزيع , عمان, الاردن, ص 269. Hodgson, E. (2004). A textbook of modern toxicology. Third edition, Department of Environmental and Biochemical Toxicology North Carolina State University, Published by John Wiley & Sons, Inc., Hoboken, New Jersey Published simultaneously in Canada	yes
Recommended Texts	Manahan, S. E. (2002). <i>Toxicological chemistry and biochemistry</i> . CRC Press.	No
Websites	https://maken.wikiwijs.nl/120137/1_Introduction#!page-4124228	



Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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	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.

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	2	30
Lab.			15	2	30
Tutorial					
Self Study		Self Study	1	5	5
Quizzes		Preparation for the Quizzes	10	2	20
discussions during lectures					
Projects / Lab.	Project Work		1	2	2
		Preparation for the Project			
Seminar	Presenting a Seminar		2	5	10
		Preparation for the Project			
Assignments, Home Work		Preparation for the H.W.	2	5	10
Report		Preparation for the Report	2	5	10
Midterm Exam (10%)		Preparation for the Exam.	1	4	4
	Evaluation				
Final Exam (50%)		Preparation for the Exam.	1	4	4
	Evaluation				
Total SWL (hr/ Semester)					125
ECTS					6



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	phytoplankton		Module Delivery	
Module Type	basic		☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	QEPE2613			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGII	Semester of Delivery		3
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	May Hameed Mohammad		e-mail	Mayhameed85@enviro.uoqasim.edu.iq
Module Leader's Acad. Title	Assistant Professor		Module Leader's Qualification	master
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date	25/8/2026		Version Number	1.0

Relation with other Modules			
العلاقة 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 Objectives أهداف المادة الدراسية	1- Defining the term of phytoplankton and distinguishing it from others terms 2-Identifying the types of phytoplankton, sizes, classify, introducing and studying their most important phyla 3- know and distinguish between Advantage and disadvantage of phytoplankton 4-recognize and defining its importance Ecological factors and Characteristics that effect on phytoplankton growth 5-Explain the most important Environments of phytoplankton 6- Introduction to the phylum of blue-green algae, its types and shapes 7-Introduction to the green algae phylum, its features and importance 8-Introduction to the phylum of diatoms, their types, shapes, and presence 9-Introducing the phylum of rotiferous algae, its characteristics and importance 10- Introduction to the phylum Euglena, its characteristics, classification, and environment 11- Introducing the phylum of Cretaceous algae or coccolithophores, its importance, environment and classification 12- Recognize between Eutrophication and blooming algae phenomenon 13- define and identification of Mechanism of flotation in Phytoplankton 14- explaining the vertical and horizon movements of phytoplankton 15- Identify the most important Placement distribution of phytoplankton 16- knowing how collect, conserve, test and diagnosis and calculate phytoplankton 17- introduction to phylum crysophyla, xanthophyte, cryptophyte and silicoflagellata
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1.The student must know how to use the term phytoplankton 2.The student gets to know the types of phytoplankton and distinguish their most important phyla 3.The student gets to know the advantage and disadvantage of phytoplankton 4. the student recognize the importance of Ecological factors and Characteristics on phytoplankton growth 5.The student explains what are the Environments that can be support of phytoplankton 6.The student should distinguish the blue-green algae phylum from the rest of the phylum 7.The student identifies the green algae division 8.The student should identify the phylum Diatomaceae and distinguish it from other phyla 9.The student explains the importance of the rotating algae phylum in the aquatic environment 10. The student should distinguish the phylum Euglena 11. The student should differentiate between the Cretaceous algae phylum and the rest of the phyla 12. The student should describe and discussion the Eutrophication and blooming algae phenomenon 13. The student explains the importance of Mechanism of flotation in Phytoplankton 14. The student explains the vertical and horizon movements of phytoplankton 15. The student identifies the most important Placement distribution of phytoplankton 16- the students discuss how collect, conserve, test and diagnosis and calculate phytoplankton 17- the students explain phylum crysophyla, xanthophyte, cryptophyte and silicoflagellata



Indicative Contents المحتويات الإرشادية	The Core Curriculum topics may be covered by asynchronous self-directed learning, synchronous virtual learning, face to face tuition, or a blend of these three learning modalities. <u>The Core Curriculum for Module 1:</u> 1. Introduction to definition and types of phytoplankton 2. classification of phytoplankton 3. Advantage and disadvantage of phytoplankton 4. Ecological factors and Characteristics that effect on phytoplankton growth 5. Environments of phytoplankton 6. Division; Green blue algae (cyanophyta) 7. Division; Green algae (chlorophyta) 8. Division; diatoms (bacillariophyta) 9. Division; dinoflagellata (pyrophyta) 10. Division; Euglenophyta 11. Division; cocolithophories (chalk-coated) 12. Eutrophication and blooming algae phenomenon 13. Mechanism of flotation in Phytoplankton 14. Vertical and horizon movements of phytoplankton 15- Placement distribution of phytoplankton 16- knowing how collect, conserve, test and diagnosis and calculate phytoplankton 17- introduction to phylum crysophyla, xanthophyte, cryptophyte and silicoflagellata <u>The Core Curriculum for Module 2:</u> 1- The student writes an essay about what the term phytoplankton includes 2. The student creates a poster about the types of phytoplankton, their sizes, and how to classify them 3. The student numerate advantage and disadvantage of phytoplankton 4. The student writes a report on the importance of Ecological factors and Characteristics on phytoplankton growth 5. The student discusses and describe the Environments of phytoplankton 6-The student explains with a poster the division of blue-green algae, its types and shapes 7. The student submits an article about the green algae phylum 8. The student explains the phylum diagram of diatoms and their types 9. The student discusses the importance of the rotating algae phylum 10. The student draws the most important members of the phylum Euglena 11. The student writes an essay about the phylum Cretaceous algae 12- The students distinguish between Eutrophication and blooming algae phenomenon 13- The student writes a report on Mechanism of flotation in Phytoplankton 14- the student draw and writing assay on Vertical and horizon movements of phytoplankton 15.The student writes a report Placement distribution of phytoplankton 16- the students discuss how collect, conserve, test and diagnosis and calculate phytoplankton 17- the student writes report on phylum crysophyla, xanthophyte, cryptophyte and silicoflagellata <u>The Core Curriculum for Module 3:</u> 1- Reminder of the importance of phytoplankton 2. Preserving phytoplankton species 3. distinguish between Advantage and disadvantage of phytoplankton 4. Reminder of the importance of Ecological factors and Characteristics on phytoplankton growth 5. remember the Environments that can be found of phytoplankton
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	6. Finding ways to control the growth of members of the blue-green algae phylum 7. Find ways to benefit from the green algae phylum 8. Addressing the cause of excessive flowering of some members of the phylum Diatomaceae 9. Warning against excessive flowering of some members of the rotiferous algae phylum 10. Find ways to use the phylum Euglena for economic purposes 11. Finding ways to benefit from calcifications of the structures of the Cretaceous algae phylum 12- Exploration of Eutrophication and blooming algae phenomenon 13- Find ways to used and benefit from Mechanism of flotation in Phytoplankton 14- Monitoring the vertical and horizon movements of phytoplankton 15- find the way to use Placement distribution of phytoplankton as bioindicators 16- finding advance ways to collect, conserve, test and diagnosis and calculate phytoplankton 17- using these phylum crysophyla, xanthophyte, cryptophyte and silicoflagellata as bioindicators
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Enabling students to research and investigate the types of phytoplankton in different aquatic environments and verifying their presence in some types of water and thus the possibility of inferring some of the characteristics of that water through them. Then enabling students to search for dangerous species and how to reduce that risk as much as possible, in addition to encouraging The desire to preserve the natural food chain in various aquatic environments and to think seriously about how to protect it and limit the flourishing of some species at the expense of others, which may cause the loss of biodiversity in the aquatic environment and to think about sound environmental planning before embarking on the establishment of any institutions or economic or financial projects. Development or energy industry projects and others that could cause the death of important species and the dominance of toxic or dangerous species or whose flourishing causes the deterioration of water bodies.
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	79	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	71	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	4.7
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		



Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2/12	10% (10)	2,3,4,5,6,7, 8,9,10,11,12,13	LO #1- #12
	Assignments	2/12	10% (10)	2,3,4,5,6,7, 8,9,10,11,12,13	LO #1 - #12
	Projects / Lab.	5/2	10% (10)	7, 13	LO #1 - #12
	Report	5/2	10% (10)	7, 13	LO #1- #12
Summative assessment	Midterm Exam	4hr	10% (10)	7	LO #1 - #6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
1	5	Definitions and terminology of phytoplankton, + Collection of samples	Defining the term of phytoplankton and distinguishing it from others terms, + learning how can Collect of samples
2	5	classification of phytoplankton + Concentration and testing of samples	Identifying the types of phytoplankton, sizes, classify, introducing and studying their most important phyla + learning how can Concentration and testing of samples
3	5	Advantage and disadvantage of phytoplankton, + Fixation and Preservation of phytoplankton samples ,	Compare between advantage and disadvantage of phytoplankton, + learning how can Fixation and Preservation of phytoplankton samples
4	5	Ecological factors and Characteristics that effect on phytoplankton growth + numeration and diagnosis of phytoplanktons	knowing the most Ecological factors and Characteristics that effect on phytoplankton growth + learning how can numeration and diagnosis of phytoplanktons
5	5	Environments of phytoplankton, + culturing of phytoplankton	Explain Environments of phytoplankton + learning how can culturing of phytoplankton



6	5	Division; Green blue algae (cyanophyta) + Division; Green blue algae (cyanophyta)	Introduction to the phylum of blue-green algae + identification of Division; Green blue algae (cyanophyta)
7	5	Division; Green algae (chlorophyta), + Division; Green algae (chlorophyta)	its types and shapes, Introduction to the green algae phylum, its features and importance, + identification of Division; Green algae (chlorophyta)
8	5	Division; diatoms (bacillariophyta) + Division; diatoms (bacillariophyta); order: Centrales , order: Pennales	Introduction to the phylum of diatoms, their types, shapes, and presence + identification and Division; diatoms (bacillariophyta); order: Centrales , order: Pennales
9	5	Division; dinoflagellata (pyrophyta) + Division; dinoflagellata (pyrophyta)	Introducing the phylum of rotiferous algae, its characteristics and importance + identification of Division; dinoflagellata (pyrophyta) and
10	5	Division; Euglenophyta + Division; Euglenophyta	Introduction to the phylum Euglena, its characteristics, classification, and environment + identification of and Division; Euglenophyta
11	5	Division; cocolithophories (chalk-coated) + Division; cocolithophories (chalk-coated)	Introducing the phylum of Cretaceous algae, its importance, environment and classification + identification of Division; cocolithophories (chalk-coated)
12	5	Eutrophication and blooming algae phenomenon + Division; crysophyta (golden brown algae)	knowing the important of phenomenon that can appeared in aquatic environments + identification of Division; crysophyta (golden brown algae)
13	5	Mechanism of flotation in Phytoplankton + Division; xanthophyte (yellow green algae)	Identify the most important mechanisms that make phytoplankton to float + identification of Division; xanthophyte (yellow green algae)
14	5	Vertical and horizon moving of phytoplankton + Division; cryptophyta	identify the most important moving of phytoplankton vertically and horizon in water environments + identification of Division; cryptophyta
15	5	Placement distribution of phytoplankton + Division; silicoflagellates	Defining how can phytoplankton distribution + identification of Division; silicoflagellates
Final Exam			



Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to definition and types of phytoplankton
Week 2	classification of phytoplankton
Week 3	Advantage and disadvantage of phytoplankton
Week 4	Ecological factors and Characteristics that effect on phytoplankton growth
Week 5	Environments of phytoplankton
Week 6	Division; cyanophyta (Green blue algae)
Week 7	Division; chlorophyta (Green algae)
Week 8	Division; bacillariophyta (diatoms)
Week 9	Division; dinoflagellata (pyrophyta)
Week 10	Division; Euglenophyta
Week 11	Division; cocolithophories (chalk-coated)
Week 12	Eutrophication and blooming algae phenomenon
Week 13	Mechanism of flotation in Phytoplankton
Week 14	Vertical and horizon movements of phytoplankton
Week 15	Placement distribution of phytoplankton

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Collection of samples
Week 2	Concentration and testing of samples
Week 3	Fixation and Preservation of phytoplankton samples
Week 4	numeration and diagnosis of phytoplanktons
Week 5	culturing of phytoplankton
Week 6	Division; cyanophyta (Green blue algae)
Week 7	Division; chlorophyta (Green algae)
Week 8	Division; bacillariophyta (diatoms) ; order: Centrales , order: Pennales
Week 9	Division; dinoflagellata (pyrophyta)
Week 10	Division; Euglenophyta



Week 11	Division; cocolithophories (chalk-coated)
Week 12	Division; crysophyta (golden brown algae)
Week 13	Division; xanthophyte (yellow green algae)
Week 14	Division; cryptophyta
Week 15	Division; silicoflagellates

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Agriculture and Agri-Food Canada. 2011. Algae Identification. Ottawa (Ontario) K1A 0C5 Canada, ISBN 978-1-100-18307-7. 2. Baliarsingh, S. K. 2019. Marine Phytoplankton Photosynthetic Systems - Size classification – Taxonomy. International Training Centre on Operational Oceanography (ITCOcean), Practical course on "Marine Phytoplankton - optics, pigment and taxonomy. Pp: 70. 3. Reynolds, C. S. 2006. The ecology of phytoplankton. Published in the United States of America by Cambridge University Press, New York. Pp: 551. 4. Verlencar, X.N. Desai, S. 2004. Phytoplankton Identification Manual. National Institute of Oceanography, National Institute of Oceanography Dona Paula, Goa - 403 004. Pp: 40. 5. Young, J.; Geisen, M.; Cros, L.; Kleijne, A.; Sprengel, C.; Probert, I. and Ostergaard, J. 2003. A guide to extant coccolithophore taxonomy, Journal of Nannoplankton Research Special Issue 1. ISSN 1210-8049. Pp:132.	No
Recommended Texts	1-Kudela lab biological oceanography. 2024. Phytoplankton Identification (a look at the tiny drifters along the California coast), university of california santa cruz. Ppt: 91.	No
Websites	https://earthobservatory.nasa.gov/features/Phytoplankton#:~:	



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.

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	2	30
Lab.			15	2	30
Tutorial					
Self Study		Self Study	10	1	10
Quizzes		Preparation for the Quizzes	12	2	24
discussions during lectures					
Projects / Lab.	Project Work				
		Preparation for the Project			
Seminar	Presenting a Seminar		15	1	15
		Preparation for the Project			
Assignments, Home Work		Preparation for the H.W.	12	2	24
Report		Preparation for the Report	5	2	10
Midterm Exam (10%)		Preparation for the Exam.	1	4	4
	Evaluation				
Final Exam (50%)		Preparation for the Exam.	1	3	3
	Evaluation				
		Total SWL (hr/ Semester)			150
		ECTS			6



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Water pollution		Module Delivery	
Module Type	core		☐ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	UoB12345			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	3	Semester of Delivery		6
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	May Hameed Mohammad		e-mail	Mayhameed85@enviro.uoqasim.edu.iq
Module Leader's Acad. Title	Assistant Professor		Module Leader's Qualification	master
Module Tutor	Name (if available)		e-mail	E-mail
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date	25/8/2026		Version Number	1.0

Relation with other Modules				
العلاقة 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 Objectives أهداف المادة الدراسية	1. Introducing the concept of water pollution and water pollutants 2. Statement of the types of water pollution 3. knowing what can be Causes of water pollution 4. Definition of chemical and organic pollution of water 5. Determination of agricultural water pollution 6. Knowledge of industrial water pollution 7. Determine how oil pollution of water occurs and its risks 8. Statement of the causes of thermal pollution of water 9. Knowledge of biological and microbial water pollution 10. Knowing about wastes of medical pollution and their effect 11. Determine the vital indicators of water pollution and how to benefit from them 12. Determination of nuclear and radioactive contamination of water 13. Known about radio and photic of water pollution and their effect 14. Learning about microplastic and their effect in water 15. Know how used of conditional responsibility for results of water pollution
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The student should know the concept of water pollution and water pollutants 2. Explain the types of water pollution 3. Explain causes of water pollution 4. The student will distinguish the chemical and organic water pollution 5. Determine the agricultural pollution of water 6. The student should know the industrial pollution of water 7. The student will distinguish the oil pollution of water and its risks 8. Explain the causes of thermal water pollution 9. To familiarize the student with the biological and microbial pollution of water 10. That the students explain the important of medical of water pollution 11. To identify the vital indicators of water pollution and how to benefit from them 12. To distinguish the nuclear and radioactive contamination of water 13. That the students enumerate the environmental hazards of radio and photic of water pollution 14. The student should identify and characterize the contamination of water with microplastic 15. The student will know how can use conditional responsibility for results of water pollution
Indicative Contents المحتويات الإرشادية	The Core Curriculum topics may be covered by asynchronous self-directed learning, synchronous virtual learning, face to face tuition, or a blend of these three learning modalities. <u>The Core Curriculum for Module 1:</u> 1. Introduction to water pollution 2. Concept and types of water pollutants 3. Causes of water pollution 4. Chemical and Organic pollution of water 5. Agriculture pollution of water 6. industrial pollution of water 7. Petroleum pollution of water 8. Thermal pollution of water 9. Biological and microbial pollution of water



10. Medical pollution of water
11. Biological indicators of water pollution
12. Nuclear and Radiation pollution of water
13. Radio and photic pollution of water
14. Water pollution by microplastic materials
15. The conditional responsibility for results of water pollution

The Core Curriculum for Module 2:

- 1- Write an essay on the concept of water pollution and its pollutants
- 2- Draw a diagram on the types of water pollution
- 3- Write a report on causes of water pollution
- 4- Write a report on chemical and organic water pollution
- 5- Seminar on agricultural water pollution
- 6- Write an article on industrial water pollution
- 7- Writing a research on water pollution with oil
- 8- A poster showing thermal water pollution
- 9- Write an abstract on biological and microbial water pollution
- 10- Paper discussions of important of medical of water pollution
- 11- Make a chart showing the vital indicators of water pollution
- 12- Write a report on nuclear and radioactive contamination of water
- 13- Writing a report on radio and photic water pollution
- 14- Making a poster showing how the water is contaminated by microplastic
- 15- Write a summary on conditional responsibility for results of water pollution

The Core Curriculum for Module 3:

- 1- Reminding of the seriousness of water pollution
- 2- Awareness of the types of water pollution
- 3- Finding ways to treat causes of water pollution or decreased it
- 4- find methods to treated chemical and organic water pollution
- 5- find ways to treatment or prevent agricultural pollution of water
- 6- keep industrial pollution of water under control
- 7- find suitable methods to control, prevent and remove of petroleum pollution of water
- 8- Finding suitable ways to treat thermal water pollution
- 9- Exploring the causes of biological and microbial water pollution
- 10- Awareness of the medical water pollution
- 11- Build methods to take advantage of biomarkers of water pollution
- 12- Find ways to detect and treat nuclear and radioactive contamination of water
- 13- Reminder of the seriousness of water pollution with microplastic
- 14- Find ways to prevent radio and light from cause water pollution
- 15- Finding appropriate environmental legislation to control water pollution that is compatible with the Iraqi environment.



Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Encouraging students to search and investigate how to verify the presence of pollution in the water, what is its type, what is the risk, how can the risk be reduced as much as possible, and what are the reasons for the presence of pollution in the water, in addition to encouraging the desire to preserve water from pollution and serious thinking about how to protect it Thinking about proper environmental planning before embarking on the establishment of any economic or development institutions or projects or energy industry projects and others.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	71	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		



Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2/10	10% (10)	3,4,5,6,7,8,9,10,11,12	LO #1 - #12
	Assignments	2/10	10% (10)	2,3,4,5,6,7,8,9,10,11	LO #1 - #12
	Projects / Lab.	1/5	10% (10)	10	LO #1 - #9
	Report	2/5	10% (10)	6,12	LO #1 - #11
Summative assessment	Midterm Exam	4hr	10% (10)	7	LO #1 - #6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

COURSE SCHEDULE:-

Week	hours	Topics Covered	Learning Outcomes
1	5	Introduction to water pollution + General guides and special directions in laboratory	Introduction to the concept and meaning of water pollution + learning about the important guide to working in the laboratory
2	5	Concept and types of water pollutants + Introduction to general analysis and tests of water	Knowing about the concept of pollutant of environment and water pollution + knowing the most important tests that used to detection of water pollution
3	5	Causes of water pollution + Collection, reservation and analysis of water samples	Knowing about what that can be causes of water pollution + knowing how can collect, save and doing tests of water samples
4	5	Chemical and Organic pollution of water + Physical tests; taste, odor and radiation tests	Distinguish between chemical and organic materials that can be water pollutants + known how can test of taste, odor and radiation that can found in water samples



5	5	Agriculture pollution of water + Physical tests; temperature, colors tests and total organic compounds TOC	Knowing what can causes water pollution from agriculture land, materials and devices + learning how do testing of water temperature , color and how measuring TOC in water
6	5	industrial pollution of water + Physical tests: turbidity and electrical conductivity tests	Knowing what can causes water pollution from industrial land, materials and tools + learning how can testing turbidity and E.C. of water .
7	5	Petroleum pollution of water + Chemical tests: Dissolved oxygen, Biochemical oxygen demand and chemical oxygen demand	Introduce to the ways that can oil inter the water and their effect + testing and knowing how can use indicators of pollution to test water such as O2, BOD and COD
8	5	Thermal pollution of water + Chemical tests: detection on microplastic particles in water	Knowing how can temperature control and effect on water + known how can detected on microplastic in water samples
9	5	Biological and microbial pollution of water + Chemical tests; PH indicators and phosphate test	Distinguished between biological and microbial pollution and their causes + known how can be measured PH and phosphate test
10	5	Medical pollution of water + Chemical tests; sulphate test	Knowing how can medical center, clinic and hospital can effect on water and their life form + known how can be test the sulphate in water samples
11	5	Biological indicators of water pollution + Chemical tests; nitrate and nitrite test	Knowing how and why can using some organisms as indicators of pollution of water + learning how can be tested the NO3 and NO2 in water samples
12	5	Nuclear and Radiation pollution of water + Chemical tests; chloride test	Knowing how can nuclear and radiation can be found in water and their effect + knowing how can be tested the chloride in water
13	5	Radio and photic pollution of water + Physical tests; Total dissolved solid and total suspended solid tests in water	Known what are the effect of radio and photic in water and how can found in water + tested how can be found TSS and TDS in water samples
14	5	Water pollution by plastic materials + Microbial tests; account of total bacteria in water	Known the effect of microplastic on water and how can be found in water + known how can used bacteria to detection of eater samples



15	5	The conditional responsibility for results of water pollution + Microbial tests; account of enterobactereace in water	Known about what are the conditional responsibility for results of water pollution and how can use it + tested the specific microbes to indicate the water pollution and their sources
Final Exam			

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to water pollution
Week 2	Concept and types of water pollutants
Week 3	Causes of water pollution
Week 4	Chemical and Organic pollution of water
Week 5	Agriculture pollution of water
Week 6	industrial pollution of water
Week 7	Petroleum pollution of water
Week 8	Thermal pollution of water
Week 9	Biological and microbial pollution of water
Week 10	Medical pollution of water
Week 11	Biological indicators of water pollution
Week 12	Nuclear and Radiation pollution of water
Week 13	Radio and photic pollution of water
Week 14	Water pollution by microplastic materials
Week 15	The conditional responsibility for results of water pollution

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	General guides and special directions in laboratory
Week 2	Introduction to general analysis and tests of water
Week 3	Collection, reservation and analysis of water samples
Week 4	Physical tests; taste, odor and radiation tests
Week 5	Physical tests; temperature, colors tests and total organic compounds TOC



Week 6	Physical tests: turbidity and electrical conductivity tests
Week 7	Chemical tests: Dissolved oxygen, Biochemical oxygen demand and chemical oxygen demand
Week 8	Chemical tests: detection on microplastic particles in water
Week 9	Chemical tests; PH indicators and phosphate test
Week 10	Chemical tests; sulphate test
Week 11	Chemical tests; nitrate and nitrite test
Week 12	Chemical tests; chloride test
Week 13	Physical tests; Total dissolved solid and total suspended solid tests in water
Week 14	Microbial tests; account of total bacteria in water
Week 15	Microbial tests; account of enterobactereace in water

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1- Laurent Hughes. Environmental pollution. Translated by the narrator, Muhammad Ammar and Ashir, Abdul Rahim Muhammad. (1989). Dar Al-Kutub for printing and publishing. Mosul University, p: 656. 2- Al-Hassan, Fathia Muhammad. (2010). environmental problems. First Edition, Arab Community Library for Publishing and Distribution. Oman. Jordan. P: 342. 3- Al-Gharabia, Sameh and Al-Farhan, Yehia. (2003). Introduction to environmental sciences. The fourth Arabic edition, the first edition, Dar Al-Shorouk for publication and distribution, Amman. Jordan. P: 443.	Yes
Recommended Texts	1- Ian, L. P.; Charles, P. G. and Mark, L. B. (2006). Environment and pollution science. Second edition, PP: 532, 30 corporate drive, suite 400, Burlington, MA01803, USA. 2- Marcel, V. P. (2006). Soil and water contamination : from molecular to catchment scale. P. O. Box447, 2300AK, Leiden, the Netherlands, ISBN O-203-96357.	yes
Websites	https://en.wikipedia.org/wiki/Water_pollution	



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.

توزيع الساعات المجدولة و الغير مجدولة (SWL= SSWL +USWL)

Activity types	Structured SWL	Un structured SWL	No. of weeks	Time Factor	SWL (hr)
Class	Class Lecturers		15	2	30
Lab.			15	2	30
Tutorial					
Self Study		Self Study	12	1	12
Quizzes		Preparation for the Quizzes	10	2	20
discussions during lectures					
Projects / Lab.	Project Work		1	5	5
		Preparation for the Project			
Seminar	Presenting a Seminar		3	5	15
		Preparation for the Project			
Assignments, Home Work		Preparation for the H.W.	10	2	20
Report		Preparation for the Report	2	5	10
Midterm Exam (10%)		Preparation for the Exam.	1	4	4
	Evaluation				
Final Exam (50%)		Preparation for the Exam.	1	4	4
	Evaluation				
		Total SWL (hr/ Semester)			150
		ECTS			6

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	تشريعات بيئية		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	UoB12345		
ECTS Credits			
SWL (hr/sem)			
Module Level	1	Semester of Delivery	
Administering Department	التلوث البيئي	College	كلية علوم البيئة
Module Leader	سليمة هادي موسى	e-mail	SALEMA@environ.uoqasim.edu.iq
Module Leader's Acad. Title	استاذ مساعد	Module Leader's Qualification	دكتوراه
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		Version Number	1.0

Relation with other Modules			
العلاقة 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 Objectives أهداف المادة الدراسية	1. التعرف على الانظمة والقوانين والتشريعات التي تهدف حماية البيئة من التلوث 2. التعرف على ضمانات والداستير القانونية في مجال حماية البيئة 3. التاكيد على تشريعات القانونية والانظمة
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	مخرجات المادة التعليمية للتشريعات البيئية هي النتائج التعليمية المتوقعة التي يجب أن يحققها الطالب أو المتدرب بعد إكمال دراسة هذه المادة. تُصاغ عادة بشكل واضح ومحدد، وتعكس ما سيكون المتعلم قادرًا على معرفته وفعله وتقديره بعد الانتهاء من المادة. فيما يلي مثال على مخرجات تعلم (Learning Outcomes) لمادة "التشريعات البيئية": □ المخرجات المعرفية: (Cognitive Outcomes) 1. أن يعرف المفاهيم الأساسية المتعلقة بالتشريعات والأنظمة البيئية. 2. أن يميز بين أنواع القوانين البيئية (الوطنية، الإقليمية، الدولية). 3. أن يشرح الإطار القانوني والمؤسسي لحماية البيئة في بلده أو في سياق دولي. 4. أن يحلل العلاقة بين القوانين البيئية ومبادئ التنمية المستدامة. □ المخرجات المهارية: (Skills Outcomes) 1. أن يفسر مواد قانون بيئي معين ويطبّقها على حالات واقعية (مثل التلوث الصناعي أو حماية التنوع البيولوجي). 2. أن يوظف مهارات البحث القانوني في تحليل وثائق أو تشريعات بيئية. 3. أن يصيغ مقترحات لتعديل أو تطوير تشريعات بيئية قائمة. 4. أن يُعدّ تقارير أو دراسات قانونية تتعلق بانتهاكات بيئية.
Indicative Contents المحتويات الإرشادية	المحتويات الإرشادية في التشريعات البيئية هي تلك المواد أو البنود التي لا تفرض التزامات قانونية صارمة، بل تهدف إلى توجيه وتحفيز الأفراد والمؤسسات نحو السلوك البيئي السليم، وتوفير المبادئ العامة أو التوصيات التي يُستحسن اتباعها لتحقيق أهداف حماية البيئة. أمثلة على المحتويات الإرشادية في التشريعات البيئية: 1. مبادئ توجيهية عامة ○ مثل مبدأ "الاحتراز"، ومبدأ "الملوث يدفع"، ومبدأ "الاستدامة". ○ هذه المبادئ لا تكون بالضرورة إلزامية، لكنها تشكل الأساس في تفسير القوانين واتخاذ القرارات البيئية. 2. التوصيات الفنية أو الإدارية ○ نصوص تشجع على استخدام تقنيات صديقة للبيئة أو إدارة الموارد بكفاءة. ○ مثال: "ينبغي على المنشآت الصناعية اعتماد أفضل الممارسات المتاحة لتقليل الانبعاثات".

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	<u>استراتيجيات تدريس مادة التشريعات البيئية</u> هي الطرق والأساليب التعليمية التي يستخدمها المعلم أو المحاضر لتوصيل المفاهيم القانونية والبيئية بفعالية للمتعلمين، مع تعزيز الفهم، التحليل، والتطبيق الواقعي للقوانين البيئية.

Student Workload (SWL)			
الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	109	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	91	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	200		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - Difference between Circuit Theory and Field Theory
Week 2	Basics of Network Elements
Week 3	Resistance and Resistivity, Ohm's Law and Inductance, Capacitance
Week 4	Review of Kirchhoff's Laws, Circuit Analysis - Nodal and Mesh
Week 5	Linearity and Superposition, Source Transformations, Thévenin and Norton Equivalents
Week 6	Review of Inductor and Capacitor as Circuit Elements, Source-free RL and RC Circuits, Transient Response
Week 7	Mid-term Exam + Unit-Step Forcing, Forced Response, the RLC Circuit
Week 8	Sinusoidal Forcing, Complex Forcing, Phasors, and Complex Impedance, Sinusoidal Steady State Response
Week 9	Nodal and Mesh Revisited, Average Power, RMS, Introduction to Polyphase Circuits
Week 10	Mutual Inductance, Linear and Ideal Transformers, Circuits with Mutual Inductance
Week 11	Frequency Response of Series/Parallel Resonances, High-Q Circuits
Week 12	Complex Frequency, s-Plane, Poles and Zeros, Response Function, Bode Plots
Week 13	Two Port Networks, Admittance, Impedance, Hybrid, and Transmittance Parameters
Week 14	Two Port Networks, Admittance, Impedance, Hybrid, and Transmittance Parameters
Week 15	Two Port Networks, Admittance, Impedance, Hybrid, and Transmittance Parameters
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to Agilent VEE and PSPICE
Week 2	Lab 2: Thévenin's / Norton's Theorem and Kirchhoff's Laws
Week 3	Lab 3: First-Order Transient Responses
Week 4	Lab 4: Second-Order Transient Responses
Week 5	Lab 5: Frequency Response of RC Circuits
Week 6	Lab 6: Frequency Response of RLC Circuits
Week 7	Lab 7: Filters

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
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Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

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