



Course Specifications

Course Title:	MARINE ENVIRONMENT PROTECTION
Course Code:	ENS 444
Program:	Environmental Sciences and Technology Program
Department:	Environment and Arid Land Agriculture
College:	Environmental Sciences Department
Institution:	King Abdulaziz University

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A. Course Identification

1. Credit hours:			
2. Course type			
a.	University <input checked="" type="checkbox"/>	College <input type="checkbox"/>	Department <input type="checkbox"/>
b.	Required <input type="checkbox"/>	Elective <input type="checkbox"/>	Others <input type="checkbox"/>
3. Level/year at which this course is offered: Forth year			
4. Pre-requisites for this course (if any): ENS 309, ENS 429			
5. Co-requisites for this course (if any): None			

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	x	60
2	Blended		
3	E-learning	x	40
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	
2	Laboratory/Studio	
3	Tutorial	
4	Others (specify)	
	Total	

B. Course Objectives and Learning Outcomes

1. Course Description		
2. Course Main Objective		
3. Course Learning Outcomes		
CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Recall the physical, chemical and biological interactions of chemical pollutants on the aquatic ecosystems.	
1.2	Write about the cumulative effects of multiple pollution sources.	

CLOs		Aligned PLOs
1.3	List the effect of spills, storm runoff, and other non routine exposure with complex dynamics.	
1.4	List the effects of variation in organisms condition on susceptibility	
2	Skills :	
2.1	Recognize th basic interactions between sediments, pelagic and benthic organisms.	
2.2	Contrast the balancing risks and benefits of different levels of testing, monitoring and waste treatment	
2.3	Predict effects of new chemicals whose mode of action is unknown	
2.4	Work independently and as part of a team.	
2.5	Manage resources, time and other members of the group.	
2.6	Communicate results of work to others	
3	Values:	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Toxicity of pollutants on aquatic environment	2
2	Chemical reactions of pollutants in the lentic ecosystems.	8
3	Chemical reactions of the pollutants in the lotic ecosystems.	8
4	Interactions between sediments, pelagic and benthic organisms.	6
5	Response of aquatic communities to toxicants	2
6	Effect of sediment-water interface on the chemical life	2
7	Case studies of marine discharges	2
Total		

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.1	Recall the physical, chemical and biological interactions of chemical pollutants on the aquatic ecosystems.	i- Explanations and examples are given for each topic in class lectures. ii- Involvement of students in active discussion about topics. iii- Providing an opportunity for students to apply what they learn in the classroom to real-life experiences. Homework assignments.	1- In class short quizzes 2- Midterm and final exams 3- Questions during lectures
1.2	Write about the cumulative effects of multiple pollution sources.	i. Explanations and examples are given for each topic in class lectures. ii. Involvement of students in active discussion about topics. iii. Providing an opportunity for students to apply what they learn in the classroom to real-life experiences. iv. Homework assignments.	1- In class short quizzes 2- Midterm and final exams 3. Questions during lectures
1.3	List the effect of spills, storm runoff, and other non routine exposure with complex dynamics.	i- Explanations and examples are given for each topic in class lectures. ii- Involvement of students in active discussion	1- In class short quizzes 2- Midterm and final exams 3. Questions during lectures

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		iii- about topics. iii. Providing an opportunity for students to apply what they learn in the classroom to real-life experiences. iv. Homework assignments.	
1.4	List the effects of variation in organisms condition on susceptibility	I. Explanations and examples are given for each topic in class lectures. I. Involvement of students in active discussion about topics. I. Providing an opportunity for students to apply what they learn in the classroom to real-life experiences. Homework assignments.	1- In class short quizzes 2- Midterm and final exams 3. Questions during lectures
2.0	Skills		
2.1	Recognize the basic interactions between sediments, pelagic and benthic organisms.	I. Homework assignments II. Problem solving. III. Field trips	1- In class short quizzes. 2- Midterm and final exams. 3- Checking the problems solved in the homework assignments.
2.2	Contrast the balancing risks and benefits of different levels of testing, monitoring and waste treatment	I. Homework assignments II. Problem solving. III. Field trips	1- In class short quizzes. 2- Midterm and final exams. 3- Checking the problems solved in the homework assignments.
2.3	Predict effects of new chemicals whose mode of action is	I. Homework assignments	1- In class short quizzes

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	unknown	II. Problem solving. III. Field trips	2-Midterm and final exams 3- Checking the problems solved in the homework assignments.
2.4	Work independently and as part of a team.	1- Writing group reports. 2- Solving problems in groups.	Grading homework assignments.
2.5	Manage resources, time and other members of the group.	1- Writing group reports. 2- Solving problems in groups.	Grading homework assignments.
2.6	Communicate results of work to others	1- Writing group reports. 2- Solving problems in groups.	Grading homework assignments.
3.0	Values		
3.1			
3.2			
...			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Class activities (in class quizzes, and homework)	Bi-weekly	40%
2	Midterm exam	8	20%
3	Final exam	16	40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Office hours 4 h / week

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Laws, E (2000). Aquatic Pollution. Hohn Wiley & Sons. TD420.L38 2000. Rand, G. (1995). Fundamentals of Aquatic Toxicology: Effects,
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	Environmental Fate and Risk Assessment. Taylor and Francis Publishers, Washington, D.C. USA. ISBN: 1560320907.
Essential References Materials	Rand, G. and Petrocelli, S. (1985) Fundamentals of Aquatic Toxicology: Methods and Applications, Hemisphere Pub. Corp. Washington, D.C., USA. ISBN: 0891163026.
Electronic Materials	Suter, G.W. (1989) Aquatic Toxicology and Environmental Fate. Lewis Aquatic Toxicology Journal. Elsevier
Other Learning Materials	Multi media associated with the text book and the relevant websites

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Lecture room with max 30 seats
Technology Resources (AV, data show, Smart Board, software, etc.)	
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Equipment and illustration tools relevant to the course material

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	April, 2021