

Course Name: Integrated Marine Pollution Control

Number of credits: 5 ECTS

Period: January/July Semester

Coordinator	Rasidah Bt Shafiee
Credits	5 ECTS
Lecturers	1.Rasidah Bt Shafiee 2.Azila Bt Ayub 3.Muhammad Kasffi bin Ramli
Level	Bachelor
Host institution	Universiti Kuala Lumpur Malaysian Institute of Marine Engineering Technology (UniKL-MIMET)
Course duration	17 weeks
New/revised	Revised

Summary

This course is a basic introduction about the main activities in Maritime Operations. Students will be exposed to the overall scope in maritime operations including the understanding of the basic concepts and terminology used within the maritime fraternity. At the end of the course, students should be able to develop the required mental schemes to assist them in understanding more advanced courses.

Target student audiences

Bachelor students majoring in Maritime operations.

Year 3, Semester 5

Prerequisites

None

Aims and objectives

The main course objective is to expose students to the methods applied in coping with marine pollution issues caused by various sources that involve various cleanup strategies, responses, and contingency plans. Integrated marine environment protection and control are essential to control contamination in the marine environment.

The Authentic Tasks are:

General learning outcomes:

By the end of the course, successful students:

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| Knowledge | -will be able to justify the marine pollution, sources, and its effects. |
| Analysis | -will be able to analyze the appropriate techniques towards oil spills preparedness and response. |
| Synthesis | -will be able to explain contingency plan, legal requirements and international conventions related to marine pollution issues. |

Overview of sessions and teaching methods

The course will make most of interactive and self-reflective methods of teaching and learning and, where possible, avoid standing lectures and presentations.

Learning methods	<ul style="list-style-type: none"> - Lecture - Tutorial - Case Study - Presentations - Independent Learning - Interviews, surveys, fieldtrip, group work, written articles/essay - Project Based Learning
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Course outline:

Week	Topics
1-3	INTRODUCTION TO POLLUTION 1.1 Introduction 1.2 Definition of pollution 1.3 Major forms of pollution
4-5	MARINE POLLUTION 2.1 Definition of marine pollution 2.2 Sources of marine pollution 2.3 Effects of marine pollution
6-7	EXAMPLES OIL SPILL CASES / INCIDENTS 3.1 Exxon Valdez 3.2 Torrey Canyon 3.3 Castillo de Bellver 3.4 Gulf War 1991 3.5 B.P Oil Spill of 2010 3.6 Oil spills incidents in Malaysia
8-9	OIL SPILL CONTAINMENT AND CLEANING-UP METHODS 4.1 Shoreline cleanup; i) Bioremediation ii) Hot water & high-pressure washing iii) Manual labour 4.2 Mechanical containment and recovery; i) Booms ii) Skimmers iii) Sorbents 4.3 Chemical methods i) Dispersants ii) Chemical stabilisation of oil by elastomizers 4.4 Burning In-situ 4.5 Natural recovery 4.6 Other related clean-up methods
10-11	THE IMPLEMENTATION OF INTERNATIONAL MARINE ENVIRONMENT AND POLLUTION CONVENTIONS 5.1 Marine environment protection 5.1.1 International Convention For The Prevention Of Pollution From Ships 1973/1978 (MARPOL) 5.1.2 International Convention On Oil Pollution, Preparedness, Response, and Co-operation 1990 (OPRC)

	5.2 Liability & Compensation 5.2.1 International Convention on Civil Liability for Oil Pollution Damage, 1992 (C.L.C. '92) 5.2.2 International Convention on the establishment of an International Fund For Compensation for Oil Pollution Damage (FUND CONVENTION '92) 5.3 Ratification and implication of the marine environment protection, liability, and compensation conventions
12-13	NATIONAL CONTINGENCY PLAN (NCP) 6.1 Level of tiered preparedness and response i) Tier 1 ii) Tier 2 iii) Tier 3 6.2 Elements of tiered response capability 6.3 The formation and the roles in Tier 1, Tier 2, and Tier 3
14-15	GLOBAL INSTRUMENTS IN MARINE POLLUTION 7.1 Global conventions on the marine environment 7.2 Impact on the shipping industry globally 7.3 Ratification of the instruments 7.4 Nation economic impact
16-17	Mini Project Presentation

Literature

Compulsory

1. Ricardo Beiras (2018), Marine Pollution Sources, Fate and Effects of Pollutants in Coastal Ecosystems, 1st Edition, Elsevier.
2. IMO (2017), MARPOL Consolidated Edition, London, IMO Publication.

Recommended

1. Judith S. Weis (2014), Marine Pollution: What Everyone Needs To Know, 1st Edition, Oxford University Press.
2. James A. Jacobs, Stephen M Testa (2014), Oil Spills and Gas Leaks: Environmental Response, Prevention and Cost Recovery, McGraw-Hill Education.
3. IMO (2011), Manual On Oil Pollution - Section I - Prevention, London, IMO Publication.
4. IMO (2010), Manual on Oil Spill Risk Evaluation and Assessment of Response Preparedness, London, IMO Publication.

Course workload

The table below summarizes course workload distribution:

Activities	Learning outcomes	Assessment	Estimated workload (hours)
In-class activities (92 hours)			
Lectures	<ul style="list-style-type: none"> Understanding theories, concepts, and methodology 	Class participation	40
Tutorial/ in-class discussion	<ul style="list-style-type: none"> Exercises and in-class discussion based on topics. 	Class participation and preparedness for discussions	30

Assignments & mini project	<ul style="list-style-type: none"> Understanding various policy & guideline, concepts, tools/cleanup methods and international conventions on marine pollution 	Class participation, field study and preparedness for assignments/mini project	14
Group presentation	<ul style="list-style-type: none"> Ability to communicate, interpret data and findings which relate to given topics 	Group assignments/Mini project presentations	8
Independent work (58)			
Group work: Assignment/Mini project	<ul style="list-style-type: none"> Contribution to the group assignment/mini project 	Quality of group assignment/mini project	20
Preparation for group presentation (assignment/ mini project)	<ul style="list-style-type: none"> Contribution to the preparation and delivery of group presentation 	Quality of group assignment/mini project presentation	8
Self Study		Self study and reading of learning materials	30
Total			150

Grading

The students' performance will be based on the following:

Assessment	Quiz	<ul style="list-style-type: none"> Covers selected topics 	20%
	Test	<ul style="list-style-type: none"> Students will be assessing twice throughout the semester 	40%
	Assignment	<ul style="list-style-type: none"> Individual/group assignment on given topics/questions related to marine pollution 	20%
	Mini Project/ Presentation	<ul style="list-style-type: none"> Students will be divided into groups of 4-5 students Will choose 1 topic among 7 topics Students will submit full report and need to present their project findings 	20%

Evaluation

Mark	Grade	Point Value	Status
80-100	A	4.00	Pass
75-79	A-	3.67	
70-74	B+	3.33	Pass
65-69	B	3.00	
60-64	B-	2.67	
55-59	C+	2.33	Pass
50-54	C	2.00	
45-49	C-	1.67	
40-44	D	1.00	
0-39	F	0.00	