Course Name: CONTROL AND MANAGEMENT OF MARINE ENVIRONMENT
Number of credits: 6 ECTs (equivalent to 4 Vietnamese Credits)

Period: Fall/spring semester (15 weeks)

Cooordinator	**Vietnam Maritime University**
Credits	6 ECTS (equivalent to 4 Vietnamese Credits)
Lecturers	NGO KIM DINH, DINH THI THUY HANG
Level	BSc.
Host institution	Vietnam Maritime University
Course duration	60 in-class hours, 120 self-study hours (total 180)
New/revised	Revised

Summary

The marine environment is becoming increasingly polluted by both natural and man-made activities. This course provide knowledge on the nature of marine pollution caused by oil and ist products as well as shipping activities.

Target student audiences

BSc. students majoring in Environmental Engineering.

Prerequisites

Required courses (or equivalents): Environmental Chemistry.

Aims and objectives

Students can be able to identify risks caused by ships and petroleum-related activities at seas.

The Authentic Tasks:

The course provides basic knowledge of marine pollution caused by shipping and petroleum accidents.

General learning outcomes:

By the end of the course, successful students will:

Knowledge	• Understand the properties and composition of petroleum and its products; the risk of marine pollution caused by the operation of the ship.
Comprehensive	• Be able to understand typical problems of marine environment and relevant solutions to them.
Application	• Propose solutions to respond to oil spills and other environmental pollution incidents caused by ships. • Identify and solve technical problems in responding to oil spills and other environmental pollution incidents caused by ships.
Analysis	• Analyze reasons of marine pollutions caused by ships and

	petroleum.
Synthesis	• Summarize the overall solutions for petroleum-related marine pollution.

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

- Video presentations
- Project Based Learning
- Literature review
- Query
- Mind map
- Team work

Course outline

Chapter	Topics
Chapter 1	Marine environmental pollution
Chapter 2	Laws and policies of marine environment protection *(revised)*
Chapter 3	Petroleum and its products
Chapter 4	Control and treatment of oil spill incidents at sea in Vietnam
Chapter 5	Responding to oil spill at sea
Chapter 6	Shore cleanup and environmental restoration, treatment of recovered oil and oily materials
Chapter 7	Compensation for marine resources and environment loss after incidents

Revised topics

Topic 1. Laws and policies of marine environment protection	
Learning objectives	• Provide basic knowledge international and Vietnamese law and regulations on marine environment protection
Learning outcomes	• Students can explain the international treaties on marine environment protection, including UNCLOS 1982, MARPOL convention, London convention, Basel convention, etc. • Students can analyze the Vietnamese regulations on marine environment protection.
Student deliverables	• Discuss relevant subjects under the facilitation of lecturer. • Take notes on key findings.
Topic materials	• Text book “Control and management of marine environment protection” • Students’ own searching related the subject.
Outline	• International treaties on marine environment protection

	• Vietnamese law and regulations on marine environment protection

Literature

Course books:

- Ngo Kim Dinh, Bui Dinh Hoan, *Control and management of marine environment protection*, Transport publisher, 2014.

Reference books:

- Đinh Thị Ngọ, *Hoá học dầu mỏ và khí*, Nxb Khoa học và kỹ thuật, Hà Nội 2001
- *Luật Bảo vệ môi trường 2020*, NXB Chính trị Quốc gia, Hà Nội
- *Luật Hàng hải Việt Nam 2015*, NXB Chính trị Quốc gia, Hà nội
- Nguyễn Hồng Thao (2003), *Ô nhiễm môi trường biển Việt Nam - Luật pháp và thực tiễn*, Nxb Thống kê, Hà Nội
- *Oil spill handbook*, 2019, Japan maritime disaster prevention center (Japan MDPC Ad.2019)

Course workload

The table below summarizes course workload distribution:

Activities	Learning outcomes	Assessment	Estimated workload (hours)
In-class work			
Lectures	Students can understand the definition and related regulations on the topics	Mid-term, accounting for 30% of overall score Final, accounting for 30% of overall score	45
Facilitated discussions	Students can debate on a specific issue related to the topic, show their understanding and point of view on the matter, resulting in developing their critical thinking and communication skills.	Class participation and preparedness for discussions. Students can earn bonus via significant contribution to the discussions.	5
Presentations and follow-up discussions	Students can present their findings on a specific issue based on their own search and information consolidation.	As 1 mid-term, accounting for 30% of overall score	10
Independent work			
Home work and Exercise	Ability to interpret data, analyze objects and use concepts, tools, and methods, and equations to solve problems.	Quality of individual assignments	**120**
Total			**180**

Course Assignments

Course assignments will constitute a multi-part project:

- Assignment #1 – 1st mid-term (X_1)
- Assignment #2 – 2nd mid-term (X_2)
- Assignment #3 – 3rd mid-term (X_3)
- Assignment #4 – 4th mid-term (X_4)
- Assignment #5 – Final test (Y)

Assignment #1: In-class test covering Chapter 1, 2.

Assignment #2: In-class test covering Chapter 3, 4.

Assignment #3: In-class test covering Chapter 5, 6, 7.

Assignment #4: Case study Project.

Assignment #5: Final exam, covering Chapter 1-7.

Grading

The students' performance will be evaluated based on the following:

Ass. components	Ass. evidences
X. Progress grade	Student must attend class in at least 75% of total class hours
	X_1 – 1st mid-term
	X_2 – 2nd mid-term
	X_3 – 3rd mid-term
	X_4 – Project
Y. Final	Y: Final grade at end of semester.

Evaluation

Course evaluation grade: $Z = 0.1X_1 + 0.1X_2 + 0.1X_3 + 0.2X_4 + 0.5Y$