*Environmental Management in Shipping and Port Operations (ECTS 4)**

COURSE OUTLINE

(1) GENERAL

SCHOOL	MARITIME AND INDUSTRIAL STUDIES		
ACADEMIC UNIT	MARITIME STUDIES		
LEVEL OF STUDIES	POSTGRADUATE		
COURSE CODE	**MNA38**	**SEMESTER**	B
COURSE TITLE	Environmental Management in Shipping and Port Operations		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	3	4
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	General Knowledge
PREREQUISITE COURSES:	NO
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBSITE (URL)	https://eclass.unipi.gr/courses/MIS140/

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Upon completion students will be able to:

- Understand what green shipping is all about
- Understand the environmental impact of the shipping industry
- Apply economic tools to improve societal perceptions of the environmental consequences of shipping
- Understand the necessity of the systemic approach between the port city and the port itself
- Identify the new tendencies of modern shipping

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
……
Others…
…….

Search for, analysis and synthesis of data and information, with the use of the necessary technology Adapting to new situations Working independently
Team work Working in an international environment Working in an interdisciplinary environment Production of free, creative and inductive thinking

(3) SYLLABUS

- General definitions and terms regarding pollution. Atmospheric pollution. Water pollution. Land based pollution. Current trends and technologies to combat pollution. Smart ports.
- Atmospheric pollution caused by the shipping industry.
- Port services regarding ballast and waste disposal.
- Oil pollution caused by the shipping industry.
- Environmental effects of Marine Transportation. Challenges and Lessons to be learned.
- Contemporary global Issues in the Shipping Industry. Ballast water, problems and management. Oil spills, sources and effects. Collision of vessels with Cetaceans. Remote sensing for marine management.
- State of Europe's Seas. Marine Protected Areas in Europe's Seas.
- IMO and the Environment. UN Sustainable Development Goals. Mediterranean Strategy for Sustainable Development. Towards a marine strategy for the deep Mediterranean Sea.
- Marine Governance in the Mediterranean Sea. Common Fisheries Policy of the EU. The Ocean Economy in 2030.
- The role of Ports in a Global Economy, Issues of Relevance and Environmental Initiatives.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face to face. If necessary, remotely.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	E-class, MS Teams
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	

Activity	***Semester workload***
Lectures	21 hours
Non-guided study	99 hours
Course total	***120***

STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	Greek. Essay report.

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- Badurina et al., 2017 Scientific Journal of Maritime Research 31, 10-17. Faculty of Maritime Studies Rijeka.
- Bailey and Solomon, 2004. Environmental Impact Assessment Review, 24 (7–8), 749–774.
- Luo and Yip, 2013. Maritime Policy and Management, 40 (5) 401–403. OECD, Environmental Impacts of International Shipping: A Case Study of the Port of Vancouver, OECD Publishing, Paris,
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- Dahms, 2014. Frontiers in Marine Science. http://www.frontiersin.org/
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- Schröder et al., 2017. Ambio 46, 400–409 (2017). https://doi.org/10.1007/s13280-017-0956-0
- Fuxin Li et al., 2018 IOP Conf. Ser.: Mater. Sci. Eng. 397 012086
- Carpenter and Macgill, 2003. Marine Pollution Bulletin, 46 (1), 21-32
- Argüello, 2020. J. shipp. trd. 5, 12. https://doi.org/10.1186/s41072-020-00068-w
  Sliškovic et al., 2018. Resources 7(4), 72; https://doi.org/10.3390/resources7040072
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- Shipping and the Environment. Improving Environmental Performance in Marine Transportation. K. Andersson, S. Brynolf, J. F. Lindgren & M. Wilewska-Bien, Editors. Springer 2016.
- Maritime traffic effects on biodiversity in the Mediterranean Sea. Edited by Abdulla A. & Linden O., 2008. IUCN publication, pp170.
- EU's Strategy on Maritime & Environmental Issues in the Four Seas, multilateral approaches in the Baltic, Black, Caspian & Mediterranean Seas. Henocque Y, & Lafon X. 2011. EU papers, Environmental and Maritime Policy. pp12.
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- International Ocean Governance. Using International Law and Organizations to manage marine resources sustainably. Kimball L. A. 2003. IUCN pp. 171.
- Marine Governance in the Mediterranean Sea. Vivero J. & Mateos J. (2015). Ashgate Publishing. pp22.
- Integration of air quality and climate change policies in shipping. The case of sulphur emmissions regulation. Kontovas C. (2020). Marine Policy 113.
- Towards a marine strategy for the deep Mediterranean Sea. Analysis of current ecological status (2020). Marine Policy 112.
- Maritime transport in the French Economy and its inpact on air pollution. An input-output analysis. Bagoulla C. & Guillotreau P. (2020). Marine Policy 116.
- International environmental law principles relevant to exploitation activity in the Area. Warner R. (2020). Marine Policy 114.
- Marine protected areas in Europe's seas. An overview and perspectives for the future. European Environment Agency Report No3, 2015.
- State of Europe's seas. European Environment Agency Report No2, 2015.
- Mediterranean Strategy for Sustainable Development. UNEP, MAP. pp 68.
- Environmental Effects of Marine Transportation. Chpt. 27. Walker et al., p. 505-530, in Introduction to World Seas: An Environmental Evaluation. Edited by C. Sheppard, Elsevier, Academic Press (2019).
- Ballast Water: Problems and Management. Chpt. 13. Gollasch S. & David M. p. 237-250, in Introduction to World Seas: An Environmental Evaluation. Edited by C. Sheppard, Elsevier, Academic Press (2019).
- Underwater noise: Sources and Effects on Marine Life. Chpt. 20. Rako-Gospic N. & Picciulin M. p. 367-389, in Introduction to World Seas: An Environmental Evaluation. Edited by C. Sheppard, Elsevier, Academic Press (2019).
- Marine Oil Spills-Oil Pollution, Sources and Effects. Chpt. 21. Zhang B. et al., p. 391-406, in Introduction to World Seas: An Environmental Evaluation. Edited by C. Sheppard, Elsevier, Academic Press (2019).
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- The role of Ports in a Global Economy, Issues of Relevance and Environmental Initiatives. Chpt. 31. Puig M. & Darbra R., p.593-611, in Introduction to World Seas: An Environmental Evaluation. Edited by C. Sheppard, Elsevier, Academic Press (2019).
- Remote sensing for Marine Management. Chpt. 5. Fingas M., p.103-119, in Introduction to World Seas: An Environmental Evaluation. Edited by C. Sheppard, Elsevier, Academic Press (2019).

- Microplastics Pollution in the Marine Environment. Chpt. 18. Barbosa L. et al., p.329-351, in Introduction to World Seas: An Environmental Evaluation. Edited by C. Sheppard, Elsevier, Academic Press (2019).
- IMO and the Environment. Various publications stemming from IMO.
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- Facts and Figures on the Common Fisheries Policy. European Commission 2014. United Nations Sustainable Development Goal 14. Various publications.