

## COURSE OUTLINE

### (1) General information

<b>FACULTY/SCHOOL</b>	School of Maritime and Industrial Studies		
<b>DEPARTMENT</b>	Department of Maritime Studies		
<b>LEVEL OF STUDY</b>	Undergraduate Studies		
<b>COURSE UNIT CODE</b>	NA61		7 <sup>th</sup>
<b>COURSE TITLE</b>	Laboratory of Environmental Management and Applications		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>in case credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the entire course, give the weekly teaching hours and the total credits</i>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
Laboratory		4	6
Add rows if necessary. The organization of teaching and the teaching methods used are described in detail under section 4			
<b>COURSE TYPE</b> <i>Background knowledge, Scientific expertise, General Knowledge, Skills Development</i>	Elective Course		
<b>PREREQUISITE COURSES:</b>	none		
<b>LANGUAGE OF INSTRUCTION:</b>	Greek		
<b>LANGUAGE OF EXAMINATION/ASSESSMENT:</b>	Greek		
<b>THE COURSE IS OFFERED TO ERASMUS STUDENTS</b>	Yes, in English		
<b>COURSE WEBSITE (URL)</b>			

### (2) LEARNING OUTCOMES

<b>Learning Outcomes</b> <i>The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail. It is necessary to consult:</i> <b>APPENDIX A</b> <ul style="list-style-type: none"> <li>Description of the level of learning outcomes for each level of study, in accordance with the European Higher Education Qualifications' Framework.</li> <li>Descriptive indicators for Levels 6, 7 &amp; 8 of the European Qualifications Framework for Lifelong Learning and</li> </ul> <b>DIX B</b> <ul style="list-style-type: none"> <li>Guidelines for writing Learning Outcomes</li> </ul>
The aim of the course "Environmental Management Laboratory and Applications" is the understanding-knowledge as well as the practical application (a) of the contribution of the maritime industry to the environmental burden, (b) the necessity to develop policy and implementation of

international legislative initiatives - management tools related to the protection of the environment from maritime activities and (c) international quality standards and their application in case studies. The course is a holistic approach to the environmental impacts of maritime activity with emphasis on issues related to Quality Assurance and Environmental Management.

Upon successful completion of the course, students will be able to:

- understand and assess the impact of the maritime industry on the marine environment (*understanding*)
- familiarize with field work and different sampling methods (*knowledge*)
- familiarize with the international and European framework for management and protection of the environment (*knowledge*)
- understand the necessity of Quality Assurance and Environmental Management (*knowledge*)
- designing an analytical protocol to conduct quantification of maritime pollutants (*analysis*)
- develop and implement in practice, in case studies, quality standards which ensure environmental protection (*implementation*)
- judge their results (*composition*)
- make judgments about environmental management (*evaluation*)

### General Competences

*Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aim?*

*Search for, analysis and synthesis of data and information by the use of appropriate technologies,  
Adapting to new situations  
Decision-making  
Individual/Independent work  
Group/Team work  
Working in an international environment  
Working in an interdisciplinary environment  
Introduction of innovative research*

*Project planning and management  
Respect for diversity and multiculturalism  
Environmental awareness  
Social, professional and ethical responsibility and sensitivity to gender issues  
Critical thinking  
Development of free, creative and inductive thinking  
.....  
(Other.....citizenship, spiritual freedom, social awareness, altruism etc.)  
.....*

- *Individual/Independent work*
- *Decision-making*
- *Search for, analysis and synthesis of data and information by the use of appropriate technologies*
- *Working in an interdisciplinary environment*
- *Adapting to new situations*
- *Environmental awareness*
- *Critical thinking*
- *Development of free, creative and inductive thinking*

### (3) COURSE CONTENT

#### THEORETICAL PART

- The meaning of Environmental Management
- Maritime sources of pollution in the marine environment
- Development of Environmental Policy - Quality Management Systems
- Monitoring of Environmental Parameters
- Quantification of shipping pollutants

#### PRACTICAL PART

- Sampling of marine samples (water and sediment)
- Field work to develop and implement quality standards

- Field work with environmental parameter determination
- Quantification of selected maritime pollutants
- Editing results

#### (4) TEACHING METHODS--ASSESSMENT

<b>MODES OF DELIVERY</b> <i>Face-to-face, in-class lecturing, distance teaching and distance learning etc.</i>	Face-to-face, class lecturing, field and laboratory work																						
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGY</b> <i>Use of ICT in teaching, Laboratory Education, Communication with students</i>	Support the learning process through the e-class platform																						
<b>COURSE DESIGN</b> <i>Description of teaching techniques, practices and methods:  Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc.</i>  <i>The study hours for each learning activity as well as the hours of self-directed study are given following the principles of the ECTS.</i>	<table border="1"> <thead> <tr> <th><i>Activity/Method</i></th><th><i>Semester workload</i></th></tr> </thead> <tbody> <tr><td>Lectures</td><td>52</td></tr> <tr><td>fieldwork</td><td>18</td></tr> <tr><td>Laboratory practice</td><td>39</td></tr> <tr><td>Essay writing</td><td>16</td></tr> <tr><td>No guided study</td><td>25</td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td><b>Total</b></td><td><b>150</b></td></tr> </tbody> </table>	<i>Activity/Method</i>	<i>Semester workload</i>	Lectures	52	fieldwork	18	Laboratory practice	39	Essay writing	16	No guided study	25									<b>Total</b>	<b>150</b>
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<b>STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS</b> <i>Detailed description of the evaluation procedures:</i>  <i>Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice tests, short- answer questions, open-ended questions, problem solving, written work, essay/report, oral exam, presentation, laboratory work, other.....etc.</i>  <i>Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students.</i>	Team or individual project and presentation in class																						

## (5) SUGGESTED BIBLIOGRAPHY:

### *-Suggested bibliography:*

ESPO (2012). Green Guide: Towards excellence in port environmental management and sustainability

Κοτρίκλα, Α. (2015) Ναυτιλία και περιβάλλον, Αθήνα: Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών.

OECD (2011), Environmental Impacts of International Shipping: The Role of Ports. OECD.

Tan A. K.-J., (2006) Vessel Source Marine Pollution. The Law and Politics of International Regulation, Cambridge University Press, Cambridge.

Τσελέντης Β. (2008) Διαχείριση Θαλασσίου Περιβάλλοντος και Ναυτιλία, Εκδόσεις Σταμούλης, Αθήνα.

UHI (2000), America's Green Ports, Environmental Management and Technology at US Ports. Urban Harbors Institute Publications, Paper 34. Boston: Urban Harbors Institute, University of Massachusetts

### *Related Scientific Magazines*

Marine Policy, Maritime Policy and Management