

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCIENCES		
ACADEMIC UNIT	PHYSICS		
LEVEL OF STUDIES	POSTGRADUATE		
COURSE CODE	M214	SEMESTER	1
COURSE TITLE	OCEANOGRAPHY		
INDEPENDENT TEACHING ACTIVITIES <i>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</i>	WEEKLY TEACHING HOURS	CREDITS	
	3	4	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Special background, specialised general knowledge		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)	http://www.physics.uoi.gr/seci/postgradcourses1.html#4		

(2) LEARNING OUTCOMES

<p>Learning outcomes <i>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.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i>
<p>The course provides the student introductory knowledge of Descriptive and Physical Oceanography. Especially after the successful completion of the course the student will</p> <ul style="list-style-type: none"> • know what are the main surface ocean currents and the reason of their formation. • have realized what salinity is and how it relates to the temperature and density of sea water. • know what are the differences between the sea ice and the ice of glaciers. • have understood how and why the sea waves are formed and the laws of physics that govern their behavior. • have understood and be able to explain the mechanism of tidal currents

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?

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

- Search for, analysis and synthesis of data and information, with the use of the necessary technology*
- Working independently*
- Team work*
- Production of free, creative and inductive thinking*
- Working in an interdisciplinary environment*
- Respect for the natural environment*

(3) SYLLABUS

Sea currents (Atlantic, Pacific, Indian Ocean, Mediterranean Sea). Salinity. Temperature of sea water. Density of seawater. Sea ice. Dissolved gases in seawater (oxygen, nitrogen, carbon dioxide). Light in the sea - colour of seawater. Propagation of sound in seawater. The waves (horizontal and vertical movement, wave speed, wave energy). Wave types. Reflection, refraction, convergence-divergence and wave diffraction. Coastal currents. Upwelling and downwelling currents. The Ekman layer. Tidal currents. Physical explanation of the tides. The tide of the Strait of Evripos

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	<i>Face-to-face</i>	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Students are referred to websites of oceanographical maps for information.	
TEACHING METHODS <i>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.</i>	Activity	Semester workload
	Lectures	39
	Homework	32
	Study of bibliography	26
	Exams	3

<p>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</p>		
	Course total	150
<p align="center">STUDENT PERFORMANCE EVALUATION</p> <p><i>Description of the evaluation procedure</i></p> <p><i>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</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>Examinations at the end of the semester</p>	

(5) ATTACHED BIBLIOGRAPHY

<ul style="list-style-type: none"> • ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΩΚΕΑΝΟΓΡΑΦΙΑ Σ.Ν. Λεοντάρη Εκδόσεις ΣΥΜΜΕΤΡΙΑ, Αθήνα (1995) Σελίδες 442 • HOW THE OCEAN WORKS: An Introduction to Oceanography M. Denny Amazon • ΩΚΕΑΝΟΓΡΑΦΙΑ – Εισαγωγή στο θαλάσσιο περιβάλλον Α. Θεοδώρου Εκδόσεις Αθ. Σταμούλης, Αθήνα (2004) Σελίδες 712
