

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Engineering		
ACADEMIC UNIT	Department of Financial and Management Engineering		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	ΓΕ0117	SEMESTER	9 th
COURSE TITLE	Environmental Systems Design and Implementation		
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	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Special background		
PREREQUISITE COURSES:	No		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)			

(2) LEARNING OUTCOMES

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> Consult Appendix A <ul style="list-style-type: none"> • 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
<p>The aim of this course is the comprehension of operation of environmental systems and to give a better understanding of the critical environmental problems that face our world. After successful completing the course, students will be expected to be able to:</p> <ul style="list-style-type: none"> - Understands the basic concepts used in environmental science - Face environmental science as an interdisciplinary study that combines knowledge and information from the physical sciences, such as biology and geology and from the social sciences, such as economics, politics and ethics in order to give an overview of how nature works and how everything interlock - Understand the operation of environmental systems - Analyze critical environmental issues

- Understand the reasons of environmental problems
- Understand the importance of natural resources
- Estimate populations changes
- Understands the concept of alternative sustainable strategies and their impact on development and the environment
- Understand the role of policy to the environment
- Understand the basic principles of environmental protection
- Understand the basic processes applied in anti-pollution technology
- Understand the environmental impact assessment procedure
- Understand the risks and toxicity to human health caused by the degradation and deterioration of ecosystems
- Enhance environmental consciousness

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
 Adapting to new situations
 Decision-making
 Project planning and management
 Respect for the natural environment
 Criticism and self-criticism
 Production of free, creative and inductive thinking

(3) SYLLABUS

Throughout this course, students will get insight into the theory and practice of environmental systems. Sustainable strategies that contribute to the development and growth of Society in balance with the environment are examined. Close attention is also paid to the way that human, social, political, economic, and ethical institutions influence natural systems.

Module Contents (Syllabus):

The concept of the environment, Environmental-ecological movement , The environmental theory of social balance
The environmental problems and their causes , Environmental systems
Natural Resources – Sustainability of ecosystems
Solid waste management system, Recycling, Alternative Packaging Management System and other products, Population Estimates
Water pollution - Water resources management system
Environmental quality assurance systems
Intermediate examination
Environmental impact assessment
The environmental licensing process for projects and activities
Energy, environment and sustainable development
Air and pollution of the atmosphere
Risks, toxicity and human health
Economy and environment, Politic and environment
Projects presentation

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of ICT in teaching	
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> <i>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</i>	Activity	Semester workload
	Lectures	39
	Study and analysis of bibliography	80
	Homework	38
	Examinations	3
	Course total	160
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <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> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Homework and intermediate examinations at the end of the semester, which include questions (development), knowledge and understanding of the content of the course, and problem solving.	

(5) ATTACHED BIBLIOGRAPHY

- *Suggested bibliography:*

Περιβαλλοντική Επιστήμη (Miller G. Tyler, Spoolman E. Scott, Π. Δημητρακόπουλος, Κ. Γαβριλάκης [επιμέλεια], 2018)

Βιώνοντας στο Περιβάλλον Ι - Αρχές Περιβαλλοντικών Επιστημών (G. TylerMiller, JR, 1999)

Βιώνοντας στο Περιβάλλον ΙΙ - Προβλήματα Περιβαλλοντικών Συστημάτων (G. TylerMiller, JR, 2009)

Περιβαλλοντικές Επιστήμες (G. TylerMiller, JR, 2006)

Περιβαλλοντική Επιστήμη - Προς ένα Βιώσιμο Περιβάλλον (R. T. Wright, D.F. Boorse, 2013)

Notes

AdditionalReferences:

Περιβαλλοντικά μοντέλα: Τύχη & μεταφορά ρύπων στον αέρα, νερό και έδαφος (J. L. Schnoor, 2003)

Αειφορία & περιβάλλον: Η Ευρωπαϊκή και εθνική προοπτική (Γ. Ι. Τσάλτας, Κ. Γ. Κατσιμπάρδης, 2004)

- *Related academic journals:*

Ecological Economics

Energy Policy

Environmental Pollution

Environmental Impact Assessment Review

Water Policy

Solid State Sciences