

COURSE OUTLINE

1. GENERAL

SCHOOL	ENGINEERING		
DEPARTMENT	PRODUCT AND SYSTEMS DESIGN ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	4312	SEMESTER	7 ^o
COURSE TITLE	ENVIRONMENTAL EDUCATION (EE)		
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
Lectures		3	6
<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>	SCIENTIFIC AREA Free Choice to Compulsory Specialization "Systems Design" (YEK3)		
PREREQUISITE COURSES:	NONE		
LANGUAGE OF TEACHING AND EXAMINATIONS:	GREEK		
COURSE DELIVERED TO ERASMUS STUDENTS	YES		
MODULE WEB PAGE(URL)	https://eclass.uowm.gr/		

2. LEARNING OUTCOMES

Learning Outcomes
<p>The course "Environmental Education and Training" aims the students' understanding the basic concepts and principles of Environmental Education. Analysis of the concepts of education, learning and training. What is environmental education and what is its purpose. Environmental education configuration and environmental awareness development. Ecology and education. Study of environmental research programs. Study of environmental programs in the formation of environmental behavior and attitudes, the understanding of the effects of materials on the environment during their production, use and disposal after the end of their life cycle</p> <p>On successful completion of this module the learner will be able to:</p> <ol style="list-style-type: none"> 1. Understand the concepts of education and training in environmental education. 2. Analyze environmental education issues. 3. Develop skills – experiences, behaviors – attitudes. 4. Develop ecological awareness and environmental responsibility. 5. Evaluate environmental education interdisciplinary and with a multidisciplinary approach. 6. Understand basic techno-economic parameters of environmental pollution. 7. Understand the importance of linking the physicochemical properties of materials in relation to their environmental behavior. 8. Familiarize themselves with issues of Life Cycle Analysis and Environmental Impact Analysis of new technological materials with emphasis on nanomaterials and polymers.

General Skills

Upon successful completion of the program students will:

- Understand the concepts of education, training, and environmental education.
- Analyze environmental education issues.
- Develop skills - experience, behavior - attitude.
- Develop ecological awareness and environmental responsibility
- Materials and Environmental education.
- Study of research programs to Environmental Education.

3. COURSE CONTENTS

The course is taught in the Eighth Semester of Studies, as a Free Elective Course for the students of the Department of Product and Systems Design Engineering at the University of Western Macedonia. The subject matter is the introduction of students to the concepts and principles of Environmental Education and Training. The aim of the course is for the student to understand the concepts of Environmental Education and Training and through the study of environmental programs to understand the formation of environmental behavior and attitudes and how they are applied to.

The content of the course is as follows:

- Environmental problems, their causes and sustainability
- Science, matter, energy and systems
- Ecosystems: what they are and how they work
- Biodiversity and evolution
- Species interactions, ecological successor, and population control
- The human population and urbanization
- Climate and biodiversity
- Conservation of biodiversity
 - o protection of species and ecosystem services
 - o protecting ecosystems and the services they provide
- Food production and environment
- Water resources and water pollution
- Geology and non-renewable mineral resources
- Energy resources
- Environmental risks and human health
- Air pollution, climate change and dilution of the ozone layer
- Solid and hazardous waste
- Environmental economics, environmental policy, and environmental worldviews

4. TEACHING METHODS - ASSESSMENT

MODE OF DELIVERY <i>Face to face, Distance learning, etc.</i>	THEORY In class, face to face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<ul style="list-style-type: none">• Use of appropriate software• Use of projection system• Support of teaching process via the electronic platform e-class.	
TEACHING METHODS	Activity	Semester workload
	Lectures (teaching hours)	45
	Semester project	20

	Independent student's own-time course, preparation for the final exam	55
	Total Course	120
ASSESSMENT METHODS	THEORY Semester project The final written exam include: <ol style="list-style-type: none"> i. Short-answer questions ii. Multiple choice questions iii. Problem solving 	

5. ATTACHED

- Suggested Bibliography:

- Introduction to Environmental Engineering and Science, GILBERT M. MASTERS, WENDELL P. ELA, 3rd Edition American, 2018, EDITIONS KLEDARETHMOS LTD.
- Environmental Science, G. Tyler Miller, Scotte E. Spoolman, A. TZIOLA PUBLICATIONS & SONS S.A., 2018, 15th Edition.
- NATURAL RESOURCES, ENVIRONMENT AND DEVELOPMENT, Authors: Arabatzis G., Polyzos, A. TZIOLAS PUBLICATIONS & SONS S.A., 2008, 1st Edition.

- Relevant scientific journals.