COURSE OUTLINE

1. Specialized educational area II7th

SCHOOL	Engineering		
DEPARTMENT	Environmental Engineering		
LEVEL OF STUDIES	Second cycle, Specialized educational area II		
COURSE CODE	EBYA	**SEMESTER**	7th
COURSE TITLE	Industrial Wastewater treatment		

TEACHING ACTIVITIES *If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	5
Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.		

COURSE TYPE *Background, General Knowledge, Scientific Area, Skill Development*	Scientific Area (Elective)
PREREQUISITES:	• Wastewater Management and Treatment Technologies I • Chemical and Biochemical Processes • Physical Processes • Environmental Microbiology
TEACHING & EXAMINATION LANGUAGE:	Greek
COURSE OFFERED TO ERASMUS STUDENTS:	No
COURSE URL:	

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

Knowledge based:

- Understanding the biological and physicochemical industrial wastewater treatment methods.
- Learning effective ways to manage and valorize industrial wastewaters.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,
ICT Use
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project design and management
Equity and Inclusion
Respect for the natural environment
Sustainability
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Critical thinking
Promoting free, creative and inductive reasoning

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- ICT Use
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3. COURSE CONTENT

The course is the continuity of knowledge obtained from the attendance of previous courses, focusing on wastewater treatment. This elective course is focused on the technologies and practices used for the treatment of various, important for the local economy, industrial wastewaters. The course refers to the specificities of different industrial wastewaters and the techniques used for processing various types of industrial wastewaters e.g. wastewater from petrochemical industry, aluminum industry, dairy industry, textile industry, olive mills, livestock farms and slaughterhouses.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD *Face to face, Distance learning, etc.*	Face-to-face teaching of the course contents using slides presentation. Use of the e-learning platform "e-class". The course also includes semester essay.
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) *Use of ICT in Teaching, in Laboratory Education, in Communication with students*	**Use of ICT in Teaching and in Communication with students**
TEACHING ORGANIZATION *The ways and methods of teaching are described in detail.* *Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.* *The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.*	
STUDENT EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others* *Please indicate all relevant information about the course assessment and how students are informed*	Written and semester essay examination (oral).

Activity	*Workload/semester*
Lectures	39
Bibliographic research & analysis	72
Essay	39

5. SUGGESTED BIBLIOGRAPHY

- Wastewatrer Treatment (In Greek), Lyberatos G., Vayenas D., Tziola publications, ISBN: 978-960-418-346-3.
- Introduction to Environmental Engineering (In Greek), Kougkoulos A.G., Tziola publications, ISBN: 960-418-077-0.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	Associate Professor Spyridon Ntougias
Contact details:	Vas. Sofias 12, 67132; tel: +30 2541079313; sntougia@env.duth.gr
Supervisors: (1)	Yes
Evaluation methods: (2)	Oral examination and essay evaluation
Implementation Instructions: (3)	Oral examination will be carried out with distance learning methods in groups of 10 people, answering two questions via MS TEAMS, overseen by invigilators to ensure the inviolability and reliability of the exam. Semester essay will be submitted as manuscript via e-class platform. Regarding grading system, the two oral questions will account for 5/10 (2.5/10 each) and the written essay will account for 5/10. The technical means for the implementation of the examination include microphone, camera, internet connection and communication platform. The hyperlink for the examination will be provided via e-class.

(1) Please write YES or NO

(2) Note down the evaluation methods used by the teacher, e.g.

- *written assignment* or/and exercises
- written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(3) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises:** the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and any other necessary information.

b) in case of **oral examination with distance learning methods:** the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.