EDUCATION LEVEL	7		
CODE	MODULE WBCC-522we	SEMESTER	2nd
TITLE	Water quality and pollution		
TEACHING ACTIVITIES		HOURS/WEEK	ECTS
Lectures, Practice exersices, Field work		3	6
TYPE OF COURSE	Main course in the specialization «Water in conditions of excess»		
PREREQUISITE KNOWLEDGE	-		
LANGUAGE OF INSTRUCTION AND ASSESSMENT	Greek		
AVAILABILITY TO ERASMUS STUDENTS	-		
WEBSITE (URL)	https://eclass.uoa.gr/courses/GEOL578/		

LEARNING OUTCOMES

Learning Outcomes/Subject Specific Competences
Upon successful completion of the course, postagraduate student will be able to: •   Distinguish/identify sources of geogenic and anthropogenic water pollution in different land use areas. •   Apply appropriate tools and laboratory techniques to investigate geological/geochemical processes that may affect the environment. •   Apply modern softwares to develop geochemical pollution models. •   Measure water quality parameters in the laboratory and in the field. •   Propose pollution remediation measures. •   Understand national and EU legislation in relation to water quality criteria. •   Collaborate with scientists from other disciplines to optimize results.

Generic Competences
• Searching, analyzing and synthesizing data and information, using the necessary technologies • Decision making • Autonomous work • Group work • Working in an interdisciplinary environment • Promotion of free, creative and deductive thinking • Cultivating respect for the natural environment

COURSE CONTENT

Water pollution is one of the most important problems facing our planet today, especially in areas of high population density. Since the Earth's water resources cannot be increased, it is essential that the quantities of fresh surface and groundwater are kept in a state in which their consumption does not cause problems for human health. Furthermore, access to clean and safe drinking water is a fundamental human right for all inhabitants of the world according to the UN Charter. The aim of the course is to provide students with an understanding of the interaction between rock, soil, and water, atmosphere and biosphere as well as of the geogenic and anthropogenic sources of pollution and their impact on the environment. The course also teaches theoretical and laboratory-based methods for assessing water quality. In addition, the current national and EU legislation and criteria (based on the EU Water Directive) for water quality are taught. Educational objects: • Understanding of water-soil-soil interaction and its influence on water quality. • Understanding and tracing geogenic and anthropogenic sources of surface and groundwater pollution. • Presentation and communication of national and local standards and criteria for water quality. • Learning methods for measuring and calculating physico-chemical parameters relevant to water quality in the laboratory.

LEARNING ACTIVITIES - TEACHING and ASSESSMENTS METHODS

MODE OF DELIVERY	Distance learning
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY	In Teaching: – Presentations using multimedia (images, animation, video). – Use of computers and specialized software and / or the use of MS programs (mainly MS Excel). – Completion of questionnaires.

	– PowerPoints (ppt) uploads in the e-class platform. In Communication with students: – Support of the learning process through the electronic platform e-Class (announcements, information, messages, documents, assignments, questionnaires, exercises, diary, user groups, multimedia, links, grading, e-book, etc.), and through personal contact.	
PLANNED LEARNING ACTIVITIES	Activity	Semester Workload
	Lectures	3 hrs x 13 weeks
	Practice Exercises	20 h
	Individual Project	45 h
	Group Project	55 h
	Total	159 h
ASSESSMENT METHODS AND CRITERIA	• Written exams (65%) or • Individual project (65%) o Written project in which the manner and methodology of the approach to the topic, the use of relevant literature and the coherence/development/structure of the text are examined (45%) o Oral presentation (20%) • -Laboratory and tutorial exercises (35%)	

TEXTBOOKS - BIBLIOGRAPHY

K.M. Vigil. Clean Water: An Introduction to Water Quality and Water Pollution Control. Oregon State University Press; 2 edition, pp. 192 (2003).

Related scientific journals (indicative) :
- Applied Geochemistry
- Environmental Pollution
- Environmental Geology
- Science of The Total Environment
- Water
- Water Pollution and Control