TECHNICAL UNIVERSITY OF CRETE
SCHOOL OF ENVIRONMENTAL ENGINEERING

Code: ENVE 345 **Course:** Aquatic Chemistry

Mandatory: X **Elective:** **Specialization:**

Semester **F** X **S** **Teaching Units** 3 **ECTS** 4

Teaching Hours per week: **T** 2 **E** 1 **L**

Instructors: E. Psillakis

Textbooks (Eudoxus): Νικολαΐδης Νικόλαος Π**, ΥΔΑΤΙΚΗ ΧΗΜΕΙΑ,** Εκδόσεις Ζήτη Πελαγία & Σια Ο.Ε.

Other recommended books:

Notes:

Labs: **# of lab exercises:** **Individual Reports** **Team Reports**

Lab final written exam **% of Final Lab Grade**

Final Grade:			
	Final Exam	100	%
	Project		%
	Labs		%
	Other ( )		%

Course Syllabus:

- Global Biogeochemical Cycles
- Determination of natural water pH
- Carbon Equilibrium
- Chemical species in solution
- Regulating tension and neutralization ability
- Creation of natural waters composition
- Law of mass action-Determination of equilibrium constants
- Chemical activity and ionic strength
- Fate of metals in the environment
- Hydrolysis and metals complexation
- Inorganic compounds as substituents
- Competitive binding of substituents
- Interaction of aquatic solutions with sediments and soils
- Solubility and Absorption
- Effect of chemical species in the solubility

- Surface complexes formation
- Redox geochemistry
- Heterogeneous reactions and cycles
- Redox equilibrium
- Capacity and redox volumetric measurements (pH scale)
- Applications of environmental geochemistry.