COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Environment		
ACADEMIC UNIT	Department of Environment		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	**234KEY**	**SEMESTER**	**7**
COURSE TITLE	Atmospheric Physical Chemistry		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	3	
Total credits		**5**

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Special background
PREREQUISITE COURSES:	-
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (Tutorials)
COURSE WEBSITE (URL)	http://www.env.aegean.gr/studies/undergraduate-degree/curriculum/atmospheric-physical-chemistry/

(2) LEARNING OUTCOMES

Learning outcomes
Main learning outcomes of this class are: • Understanding the basic principles of atmospheric physicochemistry • Acquiring the ability to identify and illustrate the main fuel-air mixture characteristics • Application of chemical kinetics to extract mathematical models for the determination of the concentrations of gaseous pollutants. • Acquiring the ability to use statistical and thermodynamic concepts to determine the concentrations of aerosols.
General Competences
Adapting to new situations Decision-making Working independently Working in an interdisciplinary environment Project planning and management

(3) SYLLABUS

Major air pollutants and their adverse effects.
Chemical kinetics.
Photochemical reactions in the atmosphere.
Alkane and alkene chemistry.
Carbonyl chemistry.
Heterogeneous reactions.
Catalytic reactions.
Production of primary pollutants during fuel combustion.
Atmospheric aerosols, nucleation, condensation and coagulation of particulate matter.
The principle of aerosol thermodynamic equilibrium.
The deliquescence relative humidity.
Aerosol distributions.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	
TEACHING METHODS	

Activity	***Semester workload***
Lectures	39
Study and analysis of bibliography	91
Course total	***130***

STUDENT PERFORMANCE EVALUATION	Language of evaluation: Greek Methods of evaluation: Short-answer questions 25% Open-ended questions 25% Problem solving 50%

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Λαζαρίδης Μ. , 2005 «Ατμοσφαιρική Ρύπανση με Στοιχεία Μετεωρολογίας», Εκδόσεις Τζιόλα, Αθήνα
Seinfeld, J. H. and Pandis, S. N., 1998, "Atmospheric chemistry and physics - from air pollution to climate change", Wiley, New York. ISBN: 0471178160
Finlayson-Pitts, B. J. & Pitts, J. N., 1999, "Chemistry of the Upper and Lower Atmosphere : Theory, Experiments and Applications", Academic Press, New York, ISBN: 012257060X- Συναφή επιστημονικά περιοδικά:

- Related academic journals: