School of Agriculture
Course Unit Syllabus

Level of qualification:
Short cycle (TESP)
Study cycle:
Environmental Protection Systems

Course Unit: **223510 – Air- Characteristics and Quality Parameters**

Year 1 **Semester 2** **ISCED Code: 712** **ECTS: 3.5**

Tipe of Course Unit: Compulsory **Delivery Mode:** Face-to-face **Language of Instruction:** Portuguese

COURSE COORDINATOR: Maria Teresa Borralho Marques dos Carvalhos

HOURS OF WORK

TOTAL HOURS	Contact Hours								Hours in autonomous work
	Theory	Theory and practice	Practical and laboratory work	Field work	Seminar	Internship	Tutorial guidance	Other	
87.5		**5**	**35**						**47.5**

Prerequisites (if applicable):

LEARNING OUTCOMES (knowledge, skills and competence)

Basic knowledge and understanding of the general concepts and processes that involve air pollution, such as pollution characteristics, sources, type of pollutants and their effects.

Comprehensive knowledge and understanding of parameters associated with outdoor and indoor air quality.

Knowledge of techniques and methodologies for monitoring indoor and outdoor air pollutants.

Ability to apply techniques and methodologies for monitoring indoor and outdoor air pollutants.

Ability to use simple models of dispersion, treatment and interpretation of results.

CONTENTS

Atmospheric pollution: sources and types of atmospheric pollution; main atmospheric factors affecting air pollution: The effects of air pollution: increasing the greenhouse effect, depletion of the ozone layer, acidification and eutrophication, photochemical pollution, reduced visibility and effects on human health. Dispersion of pollutants into the atmosphere. Measurement of pollutants in ambient air: techniques and methods for measuring gaseous pollutants. Monitoring of air quality - objectives of air quality monitoring; selection and selection of sampling sites; representativeness of a site; planning of a monitoring program; analytical control and quality control Air quality networks - objectives of an air quality network; networks; treatment and analysis of data from an air quality network; National Air Quality Network. Legislation applicable to the Atmospheric Environment: international conventions, community directives and national decrees.

DEMONSTRATION OF THE CONTENTS COHERENCE WITH THE COURSE UNIT'S LEARNING OUTCOMES

The contents provides the necessary knowledge for the understanding and analysis of air pollution issues, from the emission of pollutants into the atmosphere to the management of air quality, to its dispersion.

TEACHING METHODOLOGIES

.Teaching methods: Lectures, expository and practical, on-line literature research and experimental group work.

DEMONSTRATION OF THE COHERENCE BETWEEN THE TEACHING METHODOLOGIES AND THE LEARNING OUTCOMES

The theoretical lectures give a concise transmission of the necessary information to the students, which will be completed / complemented by an individual research on the part of the student, guided by the teacher when carrying out practical work.

The classes also involve experimental work on sampling and analysis of atmospheric pollutants. .

EVALUATION METHODS

.Experimental group work with oral presentation.

Written test of individual evaluation.

MAIN BIBLIOGRAPHY

Some elements of study will be available on the UC elearning page (Moodle)

Poluição Atmosférica – Um manual recomendado" 1ª Edição João Gomes, Setembro 2001.

Atmospheric Change-An Earth System Perspective" T.E. GRADEL e Paul J. CRUTZEN, 3ª edição 1997.

Atmospheric Chemistry and Physics of AIR POLLUTION" Jonh H. Seinfeld, 1986.

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