School of Agriculture
Course Unit Syllabus

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

Course Unit: **223515** – **Solid Waste Management**

Year 1 **Semester 2** **ISCED Code: 712** **ECTS: 4.0**

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

COURSE COORDINATOR: Ana Cristina Dinis Vicente Pardal

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	
100		**20**	**20**						**60**

Prerequisites (if applicable): Not applicable

LEARNING OUTCOMES (knowledge, skills and competence)

. Identify the different sources of waste

. Know the functional elements of an integrated waste management system

CONTENTS

Chapter 1 – Waste problematic: Waste generation by technological society.

Chapter 2 - Sources, types and composition of solid waste: Determination of the composition and characterization of MSW; physico-chemical properties of MSW.

Chapter 3 - Collect and transfer of solid waste: Handling, separation, storage and processing of MSW at source or origin; Collection, Transfer and Transport

Chapter 4 - Deposition of solid waste: Landfill; Planning, design and operation of a landfill; decomposition of waste in landfills, reactions and products originated

Chapter 5-7 - Other Types of Waste: Medical Waste, Agricultural Waste and Industrial Waste

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

These syllabuses allow to develop all stages of solid waste management in general, with a greater emphasis on municipal waste. Allow:

- Approach the solid waste problematic (characterizing them and sorting them), showing the impacts on the environment and public health;

- Show the different processing capabilities at source, collection, transportation and transfer;

- Undestand the planning, design and operation of a landfill;

- Show other waste producing activities (agricultural, industrial and hospital) and respective management operations.

- Present the current status of Portugal, with regard to solid waste management, including management plans.

TEACHING METHODOLOGIES

Expository lessons (using audiovisual media), resolution of exercises, literature research, group work, study visit

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

Expositive classes allow forward to students, in a concise manner, the necessary information, which can and should be supplemented / complemented by individual research by the

students, guided by the teacher. The resolution of exercises allows exemplify real situations, related to the management of solid waste, particularly in the characterization of solid

waste in the design of deposition units, among others, enabling consolidation of knowledge and development of critical thinking of students.

With the study visits it is intended show students the functional elements of solid waste management, described in class, including recycling centers, transfer stations, landfill system,

among others, allowing the development of skills by students.

With this perspective, the aim of a new dynamic in the classroom, making them more creative and motivating for students

EVALUATION METHODS

Work (30%) Test writing (70%)

MAIN BIBLIOGRAPHY

- Tchobanoglous, G.; Theisen, H. and Vigil, S. A.; 1993. Integrated solid waste management. Mc Graw Hill, Inc., Hightstown.

- João de Quinhones Levy, Artur João Cabeças, Resíduos Sólidos Urbanos- Princípios e Processos, AEPSA, 2006

- J. F. Santos Oliveira, Benilde Mendes Nuno Lapa, Resíduos – Gestão, Tratamento e a sua Problemática em Portugal, LIDEL, 2009;

- Directive n.º 2008/98/CE and other legislation;

- https://www.eea.europa.eu/themes/waste/municipal-waste.

Year of implementation: 2016/2017 | Date of approval by the Technical-Scientific Board: