	SUBJECT DESCRIPTION	MODELO PED.013.02
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,0Course	Mestrado de Construções Civas			Academic year	2021/2022	
Subject	Pavement Conservation and Repair			ECTS	5,0	
Type of course	Compulsory					
Year	1st	Semester	1st	Student Workload:		
Professor(s)				Total	140	Contact 52,5
Area Coordinator	PhD José Carlos Costa de Almeida					

Planned

1. OBJECTIVES OF THE CURRICULAR UNIT AND COMPETENCES

Enhancing the global understanding of materials, equipment, construction procedures and quality control for construction and maintenance of pavements.

Understand the main concepts related to the behavior of the structure and design of pavements.

Build up skills for analysis of pavement conditions and proposals for action in key activities related to construction and maintenance of road infrastructure.

Utilize design methodologies considering the various actions on the pavement.

Identify the methods of pavement design.


2. SYLLABUS

Earthworks: study and acknowledgment of the geological and geotechnical, soil suitability for use in landfills and layers of flooring.

Drainage: construction and maintenance of pipe culverts and other drainage parts.

Pavements: types of pavements, materials used in pavement construction, equipment and methods of construction and maintenance of pavements. Pathologies of pavements. Techniques for evaluating the characteristics of the design of pavement overlays, pavement recycling, quality control.

Maintenance management systems.

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3. SYLLABUS COHERENCE WITH THE CURRICULAR UNIT'S OBJECTIVES

The proposed syllabus allows students to develop skills in understanding the operation of the pavements mechanism and the main causes that may affect it. It also allows these once identified, can be adopted appropriate solutions for the pathologies identified. It also allows to understand in its overall, the operation of a system of conservation management of a road network, the definition of information that feeds it and of interventions recommended that results of the analysis made.

4. MAIN BIBLIOGRAPHY

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AASHTO (1993). Guide for Design of Pavement Structures. American Association of State Highway and Transportation Officials. USA.

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CEN (2006). Comité Européen de Normalisation . EN 12271 - Surface Dressing - Requirements.

CEN-9 (2006). Comité Européen de Normalisation. EN 13108-9 (2006)-Bituminous mixtures. Material specifications. Asphalt concrete for Ultra-Thin Layers (AUTL)

CEN (2008). Comité Européen de Normalisation. EN 12273 - Slurry surfacing. Requirements.

CEN (2005). Comité Européen de Normalisation. EN 12274 - Slurry surfacing - Test methods.

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CEN (2005). Comité Européen de Normalisation. EN 12697-40:2005 “Bituminous mixtures - Test methods for hot mix asphalt - In-situ drainability”.

CEN (2004). Comité Européen de Normalisation. EN 14188-1:Joint Fillers and Sealants - Part 1_Specifications for Hot Applied Sealants. Brussels

IPQ (2011). Instituto Português da Qualidade. NP EN 13036-1a 3 “Características superficiais de pavimentos de estradas e de aeroportos, Métodos de ensaio Parte 1: Medição da profundidade da macrotextura da superfície do pavimento através da técnica volumétrica da mancha”.

IPQ (2006). Instituto Português da Qualidade. NP EN 13108-1:2006 - Misturas Betuminosas

5. TEACHING METHODOLOGIES (INCLUDING EVALUATION)

It will be given the necessary concepts and techniques, accompanied by practical examples that will enable students to make their evaluation in solution of pathologies and extending the lifespan of pavements will be offered practical work for students to apply and develop the techniques taught. Practical work proposed will be discussed and clarified the doubts in practical classes. Learning will be supplemented with visits to works. The evaluation of this course is through an individual written test with 70% weight and an assessment of a research project on the rehabilitation of a pavement with a weight of 30%

The work will be required in evaluation moments.

6. COHERENCE BETWEEN TEACHING METHODOLOGIES AND OBJECTIVES


The teaching methodology adopted for the course, has a special focus on the practical aspect of dealing with individual cases, proposing appropriate solutions. Thus it is assured the goal of learning by doing, and giving the graduate the competence to deal with cases that affect the functionality of the road and fix the problems found.

7. ATTENDANCE

N/A

8. CONTACTS AND OFFICE HOURS

Contacts:

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Office hours:

9. OTHERS
N/A

Date:

Signature:

Signature:

Area Coordinator

Teacher