POLI ESCOLA SUPERIOR TECNOLOGIA GESTÃO TÉCNICO GUARDA	**SUBJECT DESCRIPTION**	**MODELO** PED.013.03

Course	**Human Resources Management**					
Subject	**Mathematics for Social Sciences**					
Academic year	2023-2024	*Curricular year*	1st	*Study period*	1st semester	
Type of subject	Compulsory	*Student workload (H)*	Total: 196	Contact: 90	*ECTS*	7
Professor(s)	Ana Catarina Quadrado Castro					
☒ *Area/Group Coordinator* ☐ *Head of Department*	Graça Tomaz					

PLANNED SUBJECT DESCRIPTION

1. LEARNING OBJECTIVES

The aim is for the student to acquire knowledge and skills in terms of theoretical fundamentals and calculation techniques within the curriculum of set theory, elementary functions, and linear algebra. It is also intended that the student develops reasoning, comprehension, and interpretation abilities, as well as the ability to apply the acquired knowledge to solving specific problems within the respective course area.

2. PROGRAMME

I-Set theory: Set and its representation; set equality; subsets; power set; Venn diagrams; set-theoretic operations and their properties. Applications.
II-Functions: Definition; injective function, surjective function and bijective function; composite function; inverse function; affine function; quadratic function; exponential function and logarithmic function. Applications.
III-Linear algebra: Matrices – definition and matrix algebra; matrix inversion; systems of linear equations. Determinants – definition and properties; minors and algebraic complements; Laplace theorem; adjoint matrix. Applications.

3. COHERENCE BETWEEN PROGRAMME AND OBJECTIVES

The syllabus is designed in accordance with the course objectives, aiming to foster the development of calculus and mathematical thinking as a Foundation, thus enabling students to cultivate logical reasoning and abstraction skills in a controlled, rigorous, and effective manner, which can be applied in other course units as well as in their future professional life.

4. MAIN BIBLIOGRAPHY

Compulsory

Budnik, F. S. (1993). Applied Mathematics for Business, Economics, and Social Sciences, McGraw-Hill, New York; Singapore

Arya, J. C., Lardner, R. W. (1992). Mathematical Analysis for Business, Economics, and The Life and Social Sciences, Prentice-Hall International Editions, New Jersey

Santana, A. P., Queiró, J. F. (2010). Introdução à Álgebra Linear, Gradiva, Lisboa

Silva, J. C. (1994). Princípios de Análise Matemática Aplicada, McGraw-Hill, Lisboa

Recommended

Apostol, T. M. (1985). Cálculo, Vol. I, Editora Reverte, Rio de Janeiro

Luís, G., Ribeiro,C. S. (1985). Álgebra Linear, McGraw-Hill, Lisboa

Oliveira, A. J. F. (1981). Teoria de Conjuntos, Livraria Escolar Editora, Lisboa

5. TEACHING METHODOLOGIES (INCLUDING EVALUATION)

Methodology: The teaching methods employed are both expository and interactive: theoretical presentation of the content interspersed with the solving and discussion of exercises and problems proposed by the teacher.

Continuous Assessment: Two written tests with a minimum score of 5 points on each test and a final grade (arithmetic average) equal to or greater than 10 points are required to pass.

Exam (normal season): The students who were unsuccessful in continuous evaluation can take one test covering the entire syllabus. They will be considered pass if they achieve a grade equal to or higher than 10 points.

Exam (recourse season): Every student duly enrolled in the course who has not been approved in previous seasons may, during the recourse season, take an exam covering all the content taught. They will be considered pass if they obtain a score equal to or greater than 10 points.

In any of the evaluation seasons, no student may receive a score higher than 16 points without taking an additional oral examination.

All tests/exams will be closed-book, with the use of calculators and mobile phones prohibited.

6. COHERENCE BETWEEN TEACHING METHODOLOGIES AND OBJECTIVES

The adopted methodology consists of presenting theoretical concepts rigorously, objectively, and in a sequential manner while promoting intuitive understanding and computational ability. This is achieved through illustrative examples aimed at developing scientific-mathematical reasoning and the capacity to apply mathematical concepts. With this methodologies, the goal is to establish a solid foundation of education so that the student can apply and integrate knowledge in new situations, in broad and multidisciplinary contexts.

7. ATTENDANCE

Not applicable.

8. CONTACTS AND OFFICE HOURS

Professor: Ana Catarina Quadrado Castro

Office hours: Monday from 10:30 to 11:30

Area Coordinator: Graça Tomaz; gtomaz@ipg.pt ; Office 33

OTHERS
Not applicable.

DATE
18 September 2023

SIGNATURES

Professor

(signature)

Area/Group Coordinator

(signature)