



Course Unit: 93503 - Mathematics

Year 1 Semester 1 ISCED Code: 541 ECTS: 6

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

COURSE COORDINATOR: Ana Maria Caeiro Lebre

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	
150	30	45							75

Prerequisites (if applicable): Not applicable

LEARNING OUTCOMES (knowledge, skills and competence)

It is expected that students become namely the study of functions, limits calculate, calculate derivatives and know the basic techniques of integral calculus and some applications of derivatives and integrals such as the calculation of areas.

CONTENTS

- Functions: Definition. Study of some properties and respective graphs of different functions
- Limits and continuity: Notion of point accumulation. Limit of a function at a point. Uniqueness Theorem. Operations with limits. Calculation of asymptotes to the graph of a function. Definition of continuous function. Continuous functions on intervals.
- Differential calculus and applications: Definition of derivative. Derivation rules. Derivatives of elementary functions. Differentiability and continuity. Theorems Rolle, Lagrange and Cauchy. Rule Cauchy. Indeterminacies. Study of monotony, extreme concavity and inflection of functions and their graphical representation.
- Primitive: Definition of a primitive function. Primitives shown. Methods of primitivation.
- Integral calculus: Notion of Riemann integral. Some properties of the integral. Indefinite integral. Fundamental Theorem of Analysis. Formula Barrow. Calculation of integrals. Application in areas of flat surfaces.

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

The basic knowledge of mathematics allow the understanding of scientific knowledge of the different valences of its training area, which in turn supports the activity of the licensed technology developed in the field of feed protection.

TEACHING METHODOLOGIES

Lectures, with application examples, practical classes and problem solving oriented study

Assessment: Final exam

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

Mathematics should always be part of the exhibition then share calculation exercises because only after understanding the expository part can be put into practice.

Since all matter is chained cannot break it down for review so the evaluation is done by final exam

EVALUATION METHODS

Final exam 2 times

MAIN BIBLIOGRAPHY

Theoretical and Practical leaves the discipline (Placed in Moodle)

APOSTOL , T. M. 1985. Calculation . (vol1) . Publisher Reverté Ltda. Rio de Janeiro.

CAMPOS FERREIRA, J. 1987. Introduction to Mathematical Analysis . Calouste Gulbenkian Foundation. Lisbon.

DAYS ACUTE , SF 1960. Introduction to Linear Algebra and Analytic Geometry . Lisbon.

SEBASTIAN SILVA , J. 1975. Complements of Mathematics . (Vol . 1,2 and 3). GEP . Lisbon.

Spivak , M. Calculus . Addison -Wesley . London

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