

Course guide

230316 - IMAT - Introduction to Mathematics

Last modified: 25/05/2023

Unit in charge: Barcelona School of Telecommunications Engineering
Teaching unit: 749 - MAT - Department of Mathematics.

Degree: BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Optional subject).
BACHELOR'S DEGREE IN ELECTRONIC ENGINEERING AND TELECOMMUNICATION (Syllabus 2018). (Optional subject).

Academic year: 2023 **ECTS Credits:** 2.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Consultar aquí / See here:
<https://telecos.upc.edu/ca/estudis/curs-actual/professorat-responsables-coordinadors/responsables-assignatura>

Others: Consultar aquí / See here:
<https://telecos.upc.edu/ca/estudis/curs-actual/professorat-responsables-coordinadors/professorat-assignat-idioma>

TEACHING METHODOLOGY

The seminar combines both theoretical and practical sessions, with student work.

LEARNING OBJECTIVES OF THE SUBJECT

The aim of the seminar is twofold. On the one hand, to provide the concepts and skills necessary to follow the math subjects of the first semester. On the other hand, to enhance the study methodology necessary to successfully overcome these subjects.

STUDY LOAD

Type	Hours	Percentage
Hours large group	20,0	40.00
Self study	30,0	60.00

Total learning time: 50 h

CONTENTS

Formalism

Description:

Symbols and quantifiers, formal language, statements, demonstration techniques, the language of set theory.

Full-or-part-time: 4h

Theory classes: 4h



Numbers

Description:

Real and complex numbers, algebraic manipulations, progressions, inequalities, binomial coefficients.

Full-or-part-time: 4h

Theory classes: 4h

Matrices

Description:

Matrix manipulations and matrix operations (calculations and interpretations), determinants, systems of linear equations, three and two dimensional geometry, linear varieties (lines and planes), circles.

Full-or-part-time: 4h

Theory classes: 4h

Polynomials and elementary functions

Description:

Polynomial expressions, graphs and properties of elementary functions, rational functions.

Full-or-part-time: 4h

Theory classes: 4h

Functions: differentiation and integration

Description:

Calculus of limits and derivatives, graphical representations, integral calculus and surface calculus.

Full-or-part-time: 4h

Theory classes: 4h

GRADING SYSTEM

The grade will be obtained from the activities carried out during the course (active participation in the sessions, delivery of guided exercises and activities). Eventually, the qualification so obtained can be improved with a control at the end of the seminar.