

## 230316 - IMAT - Introduction to Mathematics

Coordinating unit:	230 - ETSETB - Barcelona School of Telecommunications Engineering		
Teaching unit:	749 - MAT - Department of Mathematics		
Academic year:	2019		
Degree:	BACHELOR'S DEGREE IN ELECTRONIC ENGINEERING AND TELECOMMUNICATION (Syllabus 2018). (Teaching unit Optional) BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2010). (Teaching unit Optional) BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Teaching unit Optional)		
ECTS credits:	2	Teaching languages:	Catalan, Spanish

### Teaching staff

Coordinator:	Saez Moreno, German
Others:	Saez Moreno, German Escudero Royo, Miguel

### 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

Total learning time: 50h	Hours large group:	20h	40.00%
	Self study:	30h	60.00%

## 230316 - IMAT - Introduction to Mathematics

### Content

Formalism	Learning time: 4h Theory classes: 4h
Description: Symbols and quantifiers, formal language, statements, demonstration techniques, the language of set theory.	
Numbers	Learning time: 4h Theory classes: 4h
Description: Real and complex numbers, algebraic manipulations, progressions, inequalities, binomial coefficients.	
Matrices	Learning time: 4h Theory classes: 4h
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.	
Polynomials and elementary functions	Learning time: 4h Theory classes: 4h
Description: Polynomial expressions, graphs and properties of elementary functions, rational functions.	
Functions: differentiation and integration	Learning time: 4h Theory classes: 4h
Description: Calculus of limits and derivatives, graphical representations, integral calculus and surface calculus.	



## 230316 - IMAT - Introduction to Mathematics

### Qualification 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.

### Bibliography