



## IDENTIFYING DATA

### Mathematics: Overview of mathematics

Subject	Mathematics: Overview of mathematics		
Code	P03G370V01203		
Study programme	(*)Grao en Enxeñaría Forestal		
Descriptors	ECTS Credits	Choose	Year
	9	Basic education	1st
Teaching language			Quadmester
			2nd
Department			
Coordinator	Botana Ferreiro, Francisco Ramón		
Lecturers	Botana Ferreiro, Francisco Ramón		
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General description			

## Competencies

Code	
B4	CG-04: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Matemáticos.
C5	(*)CE-05: Capacidade para a resolución dos problemas matemáticos que poidan presentarse na enxeñaría. Aptitude para aplicar os coñecementos sobre: ecuacións diferenciais e en derivadas parciais; métodos numéricos, algorítmica numérica, xeometría diferencial; cálculo diferencial e integral.
D1	(*)CBI 1: Capacidade de análise e síntese.
D3	(*)CBI 3: Capacidade de comunicación oral e escrita tanto na lingua vernácula como en linguas estranxeiras.
D4	(*)CBI 4: Coñecementos básicos de informática.
D5	(*)CBI 5: Capacidade de xestión da información.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.
D11	(*)CBP 4: Habilidades de razoamento crítico.
D13	(*)CBS 1: Aprendizaxe autónoma.
D14	(*)CBS 2: Adaptación a novas situacións.
D15	(*)CBS 3: Creatividade.

## Learning outcomes

Expected results from this subject	Training and Learning Results	
*CE-05: Capacity for the resolution of the mathematical problems that can pose in the engineering. Aptitude to apply the knowledges on: differential equations and in partial derivatives, numerical methods, algorithmic numerical, differential geometry, differential calculation and integral.	B4	C5
		D1
		D3
		D4
		D5
		D6
		D11
		D13
		D14
		D15
Have the capacity to gather and interpret notable data (usually inside the area of study) to issue trials that include a reflection on notable subjects		

## Contents

Topic
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Differential geometry	Functions of several real variables Curves and surfaces
Infinitesimal calculation	Concept of limit in $\mathbb{R}^n$ Limit and continuity of vectorial functions of several real variables Jacobian Matrix multiple Integration Integrals of line
Differential equations	Resolution of ordinary differential equations Resolution of equations in partial derivatives
Numerical methods	Interpolation approximate Resolution of equations numerical Integration

### Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	30	48	78
Troubleshooting and / or exercises	10	16	26
Presentations / exhibitions	10	16	26
Laboratory practises	25	50	75
Troubleshooting and / or exercises	5	5	10
Long answer tests and development	5	5	10

\*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

### Methodologies

Description
Master Session
Troubleshooting and / or exercises
Presentations / exhibitions
Laboratory practises

### Personalized attention

### Assessment

Description	Qualification	Training and Learning Results		
Master Session	20	B4	C5	D1
Troubleshooting and / or exercises	5	B4	C5	D3 D6 D11 D13 D14
Presentations / exhibitions	15	B4	C5	D1 D3 D5 D15
Laboratory practises	40	B4	C5	D4 D6 D11 D13 D14
Troubleshooting and / or exercises	5	B4	C5	D3 D6 D11 D13 D14
Long answer tests and development	15	B4	C5	D1 D3 D11

### Other comments on the Evaluation

### Sources of information

#### Basic Bibliography

### **Complementary Bibliography**

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Arthur Mattuck, **Differential Equations**,

<http://ocw.mit.edu/OcwWeb/Mathematics/18-03Spring-2006/VideoLectures/index.htm>,

Paul Dawkins, **Differential Equations**, <http://tutorial.math.lamar.edu/classes/de/de.aspx>,

William Stein, **Sage**, <http://sagemath.org>,

Michael Corral, **Vector Calculus**, <http://www.mecmath.net/calc3book.pdf>,

Dale Hoffman, William Stein, David Joyner, **Integral Calculus and Sage**,

<http://sage.math.washington.edu/home/wdj/teaching/calc2-sage/calc2-sage.pdf>,

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### **Recommendations**

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### **Subjects that it is recommended to have taken before**

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Mathematics: Mathematics and IT/P03G370V01103

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