



IDENTIFYING DATA

Mathematics: Overview of mathematics

Subject	Mathematics: Overview of mathematics			
Code	P03G370V01203			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	9	Basic education	1st	2nd
Teaching language				
Department				
Coordinator	Botana Ferreiro, Francisco Ramón			
Lecturers	Botana Ferreiro, Francisco Ramón			
E-mail	fbotana@uvigo.es			
Web	http://webs.uvigo.es/fbotana/			
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. B4 Aptitude to apply the knowledges on: differential equations and in partial derivatives, numerical methods, algorithmic numerical, differential geometry, differential calculation and integral.	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

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

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>,

Recommendations

Subjects that it is recommended to have taken before

Mathematics: Mathematics and IT/P03G370V01103
