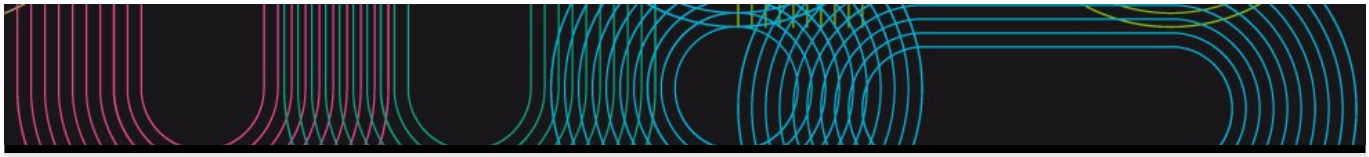
Universidade Vigo

Subject Guide 2019 / 2020



IDENTIFYING DATA				
Mathematics: Calculus 1				
Subject	Mathematics: Calculus 1			
Code	V12G363V01104			
Study programme	Degree in Industrial Technologies Engineering			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Basic education	1st	1st
Teaching language	Galician			
Department				
Coordinator	Martínez Martínez, Antonio			
Lecturers	Bajo Palacio, Ignacio Cordeiro Alonso, José María Díaz de Bustamante, Jaime González Rodríguez, Ramón Loureiro García, Marcos Martínez Martínez, Antonio Vidal Vázquez, Ricardo			
E-mail	antonmar@uvigo.es			
Web	http://faitic.uvigo.es			
General description	The aim of this matter is that the student purchase the command of the basic technicians of differential calculation in one and in several variables and of integral calculation in a variable that are necessary for other matters that has to *cursar in the degree.			

Competencies	
Code	
B3	CG3 Knowledge in basic and technological subjects that will enable them to learn new methods and theories, and equip them with versatility to adapt to new situations.
B4	CG4 Ability to solve problems with initiative, decision making, creativity, critical thinking and to communicate and transmit knowledge, skills and abilities in the field of Industrial Engineering.
C1	CE1 Ability to solve mathematical problems that may arise in engineering. Ability to apply knowledge about: linear algebra, geometry, differential geometry, differential and integral calculus, differential equations and partial differential equations, numerical methods, numerical algorithms, statistics and optimization.
D1	CT1 Analysis and synthesis.
D2	CT2 Problems resolution.
D6	CT6 Application of computer science in the field of study.
D9	CT9 Apply knowledge.
D14	CT14 Creativity.
D16	CT16 Critical thinking.

Learning outcomes				
Expected results from this subject	Training and Learning Results			
Understanding of the basic knowledges of differential calculation of one and of several variables.	A2 A3 A4	B1 B2 B3 B3 B5 B6 B7	C1 C1 C2 C3 C4 C5 C6 C7	D1 D2 D3 D4 D5 D6 D7 D8 D10

Understanding of the basic knowledges of integral calculation of functions of a variable.	A4	B3 B6	C1 C6	D1 D1
I handle of the technicians of differential calculation for the location of extremes, the local approximation of functions and the numerical resolution of systems of equations.		B3 B3 B4	C1 C2	D2 D2 D9 D10 D14 D16
I handle of the technicians of integral calculation for the calculation of areas, volumes and surfaces.		B3 B3 B4	C1 C1	D1 D1 D2 D9 D14 D16
Utilisation of computer tools to resolve problems of differential calculation and of integral calculation.		B3 B4	C1 C1	D2 D2 D6 D9 D16

Contents

Topic	
Convergence and continuity	Introduction to the real numbers. Absolute value. The space *euclídeo *R^^n. Successions. Series. Limits and continuity of functions of one and of several variables.
Differential calculation of functions of one and of several variables	Differential calculation of functions of a real variable. Differential calculation of functions of several real variables.
Integral calculation of functions of a variable	The integral of Riemann. Calculation of primitive. Improper integrals. Applications of the integral.

Planning

	Class hours	Hours outside the classroom	Total hours
Problem solving	20.5	30	50.5
Laboratory practical	12.5	5	17.5
Lecturing	32	39	71
Problem and/or exercise solving	3	3	6

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

Methodologies

	Description
Problem solving	(*)O profesor resolverá problemas e exercicios tipo e o alumno terá que resolver exercicios similares.
Laboratory practical	(*)Empregaranse ferramentas informáticas para resolver exercicios e aplicar os coñecementos obtidos nas clases de teoría.
Lecturing	(*)O profesor exporá nas clases teóricas os contidos dá a materia.

Personalized assistance

Methodologies	Description
Problem solving	The professor will attend personally the doubts and queries of the students.
Laboratory practical	The professor will attend personally the doubts and queries of the students.

Assessment

	Description	Qualification	Training and Learning Results		
Problem and/or exercise solving	They will make proofs written and/or works.	40	B3 B4	C1	D1 D2 D6 D9 D14 D16

Other comments on the Evaluation

&*amp;*lt;*p *class=&*amp;*amp;*quot;*MsoNormal&*amp;*amp;*quot;&*amp;*gt;&*amp;*lt;*span&*amp;*gt;The continuous evaluation will carry out on the previously exposed criteria. Those students that do not receive to the continuous evaluation will be evaluated with a final examination on the contents of the whole of the matter, that will suppose 100% of the note.&*amp;*lt;/*span&*amp;*gt;&*amp;*lt;/*p&*amp;*gt;
&*amp;*lt;*p&*amp;*gt;&*amp;*lt;*span&*amp;*gt;The evaluation of the students in second announcement will consist in an examination on the contents of the whole of the matter, that will suppose 100% of the note.&*amp;*lt;/*span&*amp;*gt;&*amp;*lt;/*p&*amp;*gt;
&*amp;*lt;*p&*amp;*gt;&*amp;*lt;*span&*amp;*gt;Ethical commitment:&*amp;*lt;/*span&*amp;*gt;&*amp;*lt;/*p&*amp;*gt;
&*amp;*lt;*p&*amp;*gt;&*amp;*lt;*span&*amp;*gt;&*amp;*amp;*quot;it expects that the present student a suitable ethical behaviour. In case to detect a no ethical behaviour (copy, plagiarism, utilisation of unauthorised electronic devices, and others) will consider that the student does not gather the necessary requirements to surpass the matter. In this case the global qualification in the present academic course will be of suspense (0.0).&*amp;*amp;*quot;&*amp;*lt;/*span&*amp;*gt;&*amp;*lt;/*p&*amp;*gt;

Sources of information

Basic Bibliography

Complementary Bibliography

Burgos, J., **Cálculo Infinitesimal de una variable**, 2ª,

Burgos, J., **Cálculo Infinitesimal de varias variables**, 2ª,

Galindo Soto, F. y otros, **Guía práctica de Cálculo Infinitesimal en una variable**, 1ª,

Galindo Soto, F. y otros, **Guía práctica de Cálculo Infinitesimal en varias variables**, 1ª,

García, A. y otros, **Cálculo I**, 3ª,

García, A. y otros, **Cálculo II**, 2ª,

Larson, R. y otros, **Cálculo 1**, 9ª,

Larson, R. y otros, **Cálculo 2**, 9ª,

Rogawski, J., **Cálculo. Una variable**, 2ª,

Rogawski, J., **Cálculo. Varias variables**, 2ª,

Stewart, J., **Cálculo de una variable. Trascendentes tempranas**, 7ª,

Tomeo Perucha, V. y otros, **Cálculo en una variable**, 1ª,

Tomeo Perucha, V. y otros, **Cálculo en varias variables**, 1ª,

Recommendations

Subjects that continue the syllabus

Mathematics: Calculus 2 and differential equations/V12G330V01204

Subjects that are recommended to be taken simultaneously

Mathematics: Algebra and statistics/V12G330V01103