



(*)Escola de Enxeñaría Forestal

Presentation

Welcome to the Forestry Faculty (Campus of Pontevedra - University of Vigo). Details information about our faculty can be found in <http://www.forestales.uvigo.es>

Our faculty offers the Degree in Forest Engineering

The Degree comprises 240 credits ECTS during four years, meaning an annual distribution of 60 ECTS distributed in 30 ECTS per semester.

Address

1. Name: Forestry Technical School
2. Degree: Degree in Forestry
3. Postal address: Campus A Xunqueira, 36005 Pontevedra
4. Telephone: 986-801900
5. FAX: 986-801907
6. And-mail: sdeuetf@uvigo.es
7. Web: <http://www.forestales.uvigo.es>



Faculty Management

Managerial team:

Director: D. Enrique Valero Gutiérrez del Olmo

Deputy director: D^a. Angeles Cancela Carral

Secretary: D. Juan Picos Martín

Governing bodies:

- Faculty Assembly

- Commissions:

- Permanent
- Economic Affairs
- Academic Affairs
- Credit Validation
- Quality

Departments in the Centre:

(*)Servizo e Infraestructuras do Centro

(*)

1. Administración: o horario de atención ao público de secretaría é de 9:00 a 14:00 horas.
2. Bibliotecas: http://www.uvigo.es/uvigo_gl/Administracion/Biblioteca/directorio/campus_pontevedra.html
3. Conserxaría: A conserxaría do Centro permanece aberta desde a apertura ao peche do Centro, en dúas quendas: 8:00 a 15:00 horas, e 15:00 a 22:00.
4. Reprografía: Este servizo atópase na Facultade de CC. Sociais e cobre as necesidades do Campus.
5. Cafetería
6. Administrador de Centros
7. Área de Servizos á Comunidade
8. Rexistro
9. LERD
10. Bolsas
11. CAP
12. OSIX

Aulas e laboratorios:

Aulas docentes:

AULA	Nº DE POSTOS TOTAIS	Nº DE POSTOS EN DISPOSICIÓN DE EXAME
1	65	35
2	65	35
3	65	35
4	98	53
5	104	56
6	104	56
7	104	56
8	104	56
9	104	56
SUMA	813	438

Laboratorios e talleres:

ANDAR	LABORATORIO	DOCENTE		INVEST.	
		Superficie	Capacidad Persoas	Superficie	Capac. Persoas
Soto	Lab. Hidráulica e Hidroloxía Forestal	115,83 m ²	16	35,67 m ²	3
Soto	Lab. Enxeñería Mecánica /Lab. Termotecnia	110,17 m ²	16	NO	No
Soto	Celulosa Pasta e Papel	72,04 m ²	15	35,67 m ²	3
Soto	Taller Enerxías Xiloxeneneradas	171,51 m ²	25	2º Andar	2º Andar
Soto	Taller de Madeiras	342,11 m ²	35	NO	NO
P.Baixa	Aula Informática (1)	108,85 m ²	24	NO	
P.Baixa	Aula Informática (2)	107,34 m ²	24	NO	
P.Baixa	Expresión Gráfica	168,45 m ²	48	NO	
P.Baixa	Proxectos	95,00 m ²		6	
1º	Lab. Física	112,54 m ²	16	35,67 m ²	4
1º	Lab. Ecoloxía	109,41 m ²	30	36,61 m ²	4
1º	Lab. Enxeñería do Medio Ambiente	NO	NO	34,54 m ²	4
1º	Lab. Topografía	117,57 m ²	40	36,75 m ²	2
1º	Lab. Edafoloxía	109,98 m ²	16	27,40 m ²	7
2º	Lab. Silvicultura e Repoboación	109,60 m ²	16		
2º	Lab. Enerxías Xiloxeneneradas	Soto	Soto	36,61 m ²	4
2º	Lab. Incendios Forestais	112,11 m ²	17	34,54 m ²	5
2º	Lab. Producción Vexetal	117,57 m ²	24	36,75 m ²	4
2º	Lab. de Acuicultura	112,54 m ²	pendente	NO	NO

2º	Lab. Enxeñaría Eléctrica	110,73 m ²	21	NO	NO
2º	Lab. Enxeñaría Química	109,98 m ²	15	27,40 m ²	6

Additional information

STUDENTS OFFICE:

Number tfno.: 986 801913

And-mail: daeuetf@uvigo.es



Main Regulations

Rules of interest for the students; we indicate the links where the student can find information of his interest:

Specific rules of the University of Vigo: www.uvigo.es

http://www.uvigo.es/uvigo_gl/administración/servicioalumnado

<http://extension.uvigo.es>

http://webs.uvigo.es/vicoap/normativa_oa.gl.htm

http://www.uvigo.es/uvigo_gl/estudiostitulaciones

http://www.uvigo.es/uvigo_gl/vidauniversitaria/calendarioescolar

http://www.uvigo.es/uvigo_gl/vidauniversitaria/universidadvirtual

http://secxeral.uvigo.es/secxeral_gl/normativa/normativauniversidad/estudaintes/regulamento_estudiantes.html

http://www.uvigo.es/uvigo_gl/vidauniversitaria/normativa

<http://www.forestales.uvigo.es>

Other Information

- **Study Plan:** <http://www.forestales.uvigo.es>
- **Scholarships:** <http://193.146.32.123:8080/GestorBecas/user/Becas.do?accion=tiposList>
- **Medical assistance:** http://www.uvigo.es/uvigo_gl/vidauniversitaria/salud/centromedico/
- **Employment Office :** <http://emprego.uvigo.es/>
- **Canteens and accommodation:** http://www.uvigo.es/uvigo_gl/vidauniversitaria/comedores_aloxamento/
- **Other activities:**
 - http://www.campuspontevedra.uvigo.es/index.php?*id=14 (Sports in the Campus of Pontevedra)
 - <http://deportes.uvigo.es/index.asp> (Sport Services).
 - <http://extension.uvigo.es/>

(*)Grao en Enxeñaría Forestal

Subjects

Year 1st

Code	Name	Quadmester	Total Cr.
P03G370V01101	Graphic expression: Graphic expression and cartography	1st	9
P03G370V01102	Physics: Physics I	1st	6
P03G370V01103	Mathematics: Mathematics and IT	1st	9
P03G370V01104	Basics of business economics	1st	6
P03G370V01201	Biology: Plant Biology	2nd	6
P03G370V01202	Physics: Physics II	2nd	6
P03G370V01203	Mathematics: Overview of mathematics	2nd	9
P03G370V01204	Chemistry: Chemistry	2nd	9

IDENTIFYING DATA				
Graphic expression: Graphic expression and cartography				
Subject	Graphic expression: Graphic expression and cartography			
Code	P03G370V01101			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	9	Basic education	1st	1st
Teaching language				
Department				
Coordinator	Armesto González, Julia			
Lecturers	Armesto González, Julia			
E-mail	julia@uvigo.es			
Web	http://http://cursos.faitic.uvigo.es/tema1415/claroline/course/index.php			
General description	(*)Esta materia ofrece unhas nocions fundamentais sobre os sistemas de representación aplicados ao ámbito da Enxeñaría Forestal, con especial atención ao sistema de planos acotados. Asimismo se abordan conceptos fundamentais de cartografía e xeodesia que permitirán ler e interpretar mapas correctamente. Ademais, se amosa a utilización de ferramentas de software que permiten ao alumno xerar os seus propios planos e documentos de expresión gráfica a escala considerando estándares recollidos en normas ISO.			

Competencies	
Code	
B5	CG-05: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Dos sistemas de representación.
B29	CG-29: Coñecementos das seguintes materias necesarios tanto para a xestión dos sistemas forestais como para a súa conservación: camiños forestais.
C1	(*)CE-01: Coñecemento das técnicas de representación. Capacidade de visión espacial. Normalización. Debuxo topográfico. Programas informáticos de interese en enxeñaría: deseño asistido por ordenador.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.
D11	(*)CBP 4: Habilidades de razoamento crítico.
D13	(*)CBS 1: Aprendizaxe autónoma.

Learning outcomes		
Expected results from this subject	Training and Learning Results	
(*)*CE-01.1: Comprise and know apply different appearances related with the Technical Drawing.	B5 B29	C1
New		C1
New		D6 D11
New		D6
New		D13
New		C1
New		D6
New	B5 B29	C1
New		D11
New		D13

Contents	
Topic	
1.- Normalisation	Organisms of normalisation Formats, lines and writings normalised. Folded of planes. Scales. Normalisation in the representation: Representation of seen; section, court, break. Acotation.
2.-System of representation diedric system	Descriptive geometry and systems of representation. diedric System: generalities, the point, the straight and the plane

3.- System of bounded planes	System of bounded planes: generalities, the point, the straight and the plane. Intersections. Parallelism and perpendicularity. Abatements and distances. Representation and resolution of covers.
4.- Topographical drawing	Representation of the terrain. Forms of the terrain. Equidistances and curves of level. Points and singular lines of the terrain. Traced of longitudinal and transversal profiles. Explanations.
5.- Computer-aided design	Drawing of simple entities. Utilities and help to the drawing. Edition and modification of simple entities. Blocks and external references. Presentation of planes. Preparation of Digital Models of Terrain

Planning

	Class hours	Hours outside the classroom	Total hours
Troubleshooting and / or exercises	16	8	24
Laboratory practises	20	36	56
Tutored works	5	15	20
Master Session	24	36	60
Practical tests, real task execution and / or simulated.	5	15	20
Troubleshooting and / or exercises	5	10	15
Jobs and projects	2	20	22
Systematic observation	8	0	8

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

Methodologies

	Description
Troubleshooting and / or exercises	(*) Actividade na que se formulan problemas e/ou exercicios relacionados coa materia. O alumno debe desenvolver as solucións adecuadas ou correctas mediante a exercitación de rutinas, a aplicación de fórmulas e procedementos de transformación da información dispoñible e a interpretación dos resultados. Sirve de complemento da lección maxistral. Desenvólvese en aula con dotacións específicas. Se desenvolven as competencias CE-01.1, CE-01.2, CE-01.3, CE-01.5, CG-29. A docencia poderá impartirse total ou parcialmente en inglés en caso de demanda por parte dos alumnos ou do centro.
Laboratory practises	(*) Actividades de aplicación dos coñecementos a situacións concretas e de adquisición de habilidades básicas e procedementais relacionadas coa expresión gráfica e o dibuxo topográfico mediante software específico. Desenvólvense en aula de informática. Se desenvolven as competencias CE-01.3, CE-01.5. A docencia poderá impartirse total ou parcialmente en inglés en caso de demanda por parte dos alumnos ou do centro.
Tutored works	(*) O estudante, de maneira individual ou en grupo, elabora un documento sobre a temática da materia. Inclúe a procura e recollida de información, lectura e manexo de bibliografía, redacción, etc. Se desenvolven as competencias CT-6, CT-11, CT-13.
Master Session	(*) Exposición por parte do profesor dos contidos sobre a materia obxecto de estudo, bases teóricas e/ou directrices de traballos, exercicios ou proxectos a desenvolver polo estudante. Se desenvolven as competencias CE-01.1, CE-01.2, CE-01.3, CE-01.4, CE-01.5, CG -29.

Personalized attention

Methodologies	Description
Master Session	
Troubleshooting and / or exercises	
Laboratory practises	

Assessment				
	Description	Qualification	Training and Learning Results	
Practical tests, real task execution and / or simulated.	(*)Probas para a avaliación que inclúen actividades, problemas ou exercicios prácticos a resolver. Os alumnos deben dar resposta á actividade formulada, aplicando os coñecementos teóricos e prácticos da materia.	35	B5 B29	C1 D6
Troubleshooting and / or exercises	(*)Proba na que o alumno debe solucionar unha serie de problemas e/ou exercicios nun tempo/condicións establecido/as polo profesor. Desta maneira, o alumno debe aplicar os coñecementos que adquiriu.	35	B5 B29	D6 D11
Jobs and projects	(*)O estudante presenta o resultado obtido na elaboración dun documento sobre a temática da materia, na preparación de seminarios, investigacións, memorias, ensaios, resumos de lecturas, conferencias, etc. Pódese levar a cabo de maneira individual ou en grupo, de forma oral e escrita.	20		D6 D11 D13
Systematic observation	(*)Técnicas destinadas a recompilar datos sobre a participación do alumno, baseados nun listado de condutas ou criterios operativos que faciliten a obtención de datos cuantificables.	10	B5 B29	D6 D11 D13

Other comments on the Evaluation

Sources of information

Basic Bibliography

Rodríguez de Abajo, F.J.; Álvarez Bengoa, V., **Curso de dibujo geométrico y de croquización**, Editorial Donostiarra, 2005

Polidura Fernández, F. J., **Topografía, geodesia y cartografía aplicadas a la ingeniería**, Ed. Mundi-Prensa, 2000

Vázquez, F.; Martín, J., **Lectura de mapas**, Ediciones del IGN, 1995

Complementary Bibliography

Recommendations

IDENTIFYING DATA				
Physics: Physics I				
Subject	Physics: Physics I			
Code	P03G370V01102			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Basic education	1st	1st
Teaching language				
Department				
Coordinator	González Fernández, Pio Manuel			
Lecturers	González Fernández, Pio Manuel			
E-mail	pglez@uvigo.es			
Web				
General description	Didactic aims Dominate the concepts and physical laws of the mechanics, fields and waves. Differentiate the physical appearances *involucrados in the resolution of a problem of engineering. Analyse, interpret and explain daily physical situations. Resolve problems of mechanics, fields and waves applied the engineering. Dominate experimental technicians and the handle of instrumentation for the measure of physical magnitudes. Design and schedule an experimental setting in team related with appearances of the physics applied. Dominate the acquisition of experimental data and his statistical treatment Dominate technicians of graphic representation and calculation of parameters of adjust. Present a report or technical memory (oral and writing) with utilisation of the new technologies.			

Competencies

Code	
B2	CG-02: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Físicos.
C2	(*)CE-02: Comprensión e dominio dos conceptos básicos sobre as leis xerais da mecánica, campos e ondas e a súa aplicación para a resolución dos problemas propios da enxeñaría.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.

Learning outcomes

Expected results from this subject	Training and Learning Results		
Lana relation between competitions *and results, *and he weight of each competition inside wool matter show * in him *pdf *attach.	B2	C2	D6
http://forestales.uvigo.es/sites/default/files/02%20**Fisica%20*I.*Pdf#**overlay-**context=are/**content/competitions-*and-resulted-of-*learning-by-matter			

Contents

Topic	
1. KINEMATICS	1.1.KINEMATICS OF THE MATERIAL POINT 1.2.KINEMATICS OF THE RIGID SYSTEMS
2. DYNAMICS	2.1. DYNAMIC OF THE POINT AND THE SYSTEMS 2.2. MOMENTS OF INERTIA 2.3. DYNAMIC OF THE BEEN USED TO RIGID
3. STATIC	3.1. LAWS OF STATIC
4. MECHANICAL SYSTEMS	4.1. FRICTION BETWEEN USED TO 4.2. YOU SCHEME SIMPLE 4.3. ELASTICITY
5. MECHANICAL SWINGS	5.1. FREE SWINGS 5.2. SWINGS CUISHIONED AND FORCED
6. MECHANICS OF FLUIDS	6.1. HYDROSTATIC 6.2. HYDRODINAMICS

Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	20	30	50
Troubleshooting and / or exercises	15	22.5	37.5
Laboratory practises	17	25.5	42.5
Reports / memories of practice	1	15	16
Short answer tests	1.5	0	1.5
Troubleshooting and / or exercises	2.5	0	2.5

*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	Exhibition by part of the professor of the contents of the matter, foundations and theoretical bases and guidelines of the exercises to develop by the student.
Troubleshooting and / or exercises	The professor gives the general guidelines for the resolution of problems or exercises related with the matter. The student has to develop the suitable or correct solutions by means of the application of formulas and the application of procedures.
Laboratory practises	Activities realised in the laboratory of application of the knowledges to concrete situations and of acquisition of basic skills and *procedimentalEs related with the matter. The *alumnado adopts an active role, developing diverse actions (realisation of an experiment, setting, manipulation of scientific instrumentation and taking of experimental data) to build his knowledge (graphic representation and deduction of the physical law that governs the experiment).

Personalized attention

Methodologies	Description
Master Session	
Laboratory practises	
Troubleshooting and / or exercises	

Assessment

	Description	Qualification	Training and Learning Results
Reports / memories of practice	Formative evaluation, realised of a continuous way, carried out fundamentally in the classes of laboratory that allows a continuous follow-up and a *realimentación constructive. It will value the presence and active participation in classes and in works *grupales, by means of checklists and by direct observation, and the quality of the works and individual reports and of group.	20	B2 C2 D6
Short answer tests	They will evaluate the theoretical and practical knowledges of the matter using like objective instrument the answer written of several questions of theoretical application-practical.	35	B2 C2 D6
Troubleshooting and / or exercises	They will evaluate the theoretical and practical knowledges of the matter (35%) and the purchased in the classes of laboratory (10%) using like objective instrument the resolution written of problems and/or exercises.	45	B2 C2 D6

Other comments on the Evaluation

&*nbsp;In each methodology (Memories of practices, Proof of short answer and Resolution of problems) requires show a basic and minimum competition, that establishes in Apt=30. Numerical final qualification on scale of 10 points, according to the valid legislation.

Sources of information

Basic Bibliography

Complementary Bibliography

Tipler P.A, **Física**, Barcelona, 1992,
 González P., Lusquiños F, **Fundamentos Físicos para Forestais**, Vigo, 2010,
 Sears F.W., Zemansky M.W., Young H.D., Freedman R.A, **Física**, México, 1999,
 Gettys W.E., Keller F.J., Skove M.J, **Física clásica y moderna**, Madrid, 1992,
 González P., Lusquiños F, **Física en imaxes**, Vigo, 2007,

Recommendations

Subjects that continue the syllabus

Physics: Physics II/P03G370V01202

Subjects that are recommended to be taken simultaneously

Mathematics: Mathematics and IT/P03G370V01103

IDENTIFYING DATA				
Mathematics: Mathematics and IT				
Subject	Mathematics: Mathematics and IT			
Code	P03G370V01103			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	9	Basic education	1st	1st
Teaching language	Spanish Galician			
Department				
Coordinator	Casas Mirás, José Manuel			
Lecturers	Casas Mirás, José Manuel			
E-mail	jmcasas@uvigo.es			
Web	http://http://faitic.uvigo.es/			
General description	The *asignatura is programmed so that the student purchase the necessary competitions to resolve problems of *índole mathematical that can present in the Forest Engineering, so that it purchase skill in the handle of programs of calculation, basic knowledges of Computing and management of the information, as well as in the handle of TIC.			

Competencies

Code	
B4	CG-04: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Matemáticos.
C3	(*)CE-03: Capacidade para a resolución dos problemas matemáticos que poidan presentarse na enxeñaría. Aptitude para aplicar os coñecementos sobre: álgebra lineal; xeometría; cálculo diferencial e integral. Coñecementos básicos sobre ordenadores, sistemas operativos, bases de datos, programación e programas de cálculo de uso en enxeñaría.
D1	(*)CBI 1: Capacidade de análise e síntese.
D2	(*)CBI 2: Capacidade de organización e planificación.
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.
D7	(*)CBI 7: Adquirir capacidade na toma de decisións.
D9	(*)CBP 2: Habilidades nas relacións interpersoais.
D10	(*)CBP 3: Recoñecer a diversidade e a multiculturalidade.
D11	(*)CBP 4: Habilidades de razoamento crítico.
D12	(*)CBP 5: Desenvolver un compromiso ético, que implique o respecto dos dereitos fundamentais e de igualdade entre homes e mulleres, e dos principios de igualdade de oportunidades, accesibilidade universal a persoas con discapacidade e educación para a paz.
D13	(*)CBS 1: Aprendizaxe autónoma.
D14	(*)CBS 2: Adaptación a novas situacións.
D15	(*)CBS 3: Creatividade.
D16	(*)CBS 4: Liderado.
D18	(*)CBS 6: Iniciativa e espírito emprendedor.
D19	(*)CBS 7: Motivación pola calidade.

Learning outcomes

Expected results from this subject	Training and Learning Results		
Capacity for the resolution of the mathematical problems that can arise in the engineering. Capacity to apply knowledges of: linear algebra; geometry; differential calculation and integral; basic knowledges on computers, operating systems, databases, programming and programs of calculation of use in the engineering.	B4	C3	D1 D2 D3 D4 D5 D6 D7 D9 D10 D11 D12 D13 D14 D15 D16 D18 D19
The relation between competitions and results, and the weight of each competition inside the *asignatura show in the pdf attach. http://foretales.uvigo.es/sites/default/files/03%20*Matemat%20and%20*inf.Pdf#*overlay-*context=is/*content/competitions-and-resulted-of-learning-by-matter			

Contents

Topic	
Subject 1. The body of complex numbers	The body of complex numbers. Representation of complex numbers. Module and argument. Euler's Formula. Operations with complex numbers in polar form: powers (De Moivre's formula), roots, exponentials, logarithms.
Subject 2. Vectorial spaces	The vectorial space R^n . Vectorial Subspaces. Linear combination. Dependency and linear independence. Vectorial spaces of finite dimension. Base and dimension. Rank.
Subject 3. Linear applications	Linear applications. Properties. Core and image of a linear application. Characterisation of the linear applications injectives and surjectives. Rank of a linear application. Matrix associated to a linear application.
Subject 4. Matrices	Definition and types of matrices. Vectorial space of the matrices $m \times n$. Product of matrices. Regular matrix. Rank of a matrix. Calculation of the rank of a matrix and of the reverse matrix by means of elementary operations.
Subject 5. Determinants	Determinants Of a square matrix of order 2 and of order 3. Properties. Development by attachments. Calculation of the reverse matrix. Calculation of the rank of a matrix.
Subject 6. Systems of linear equations	Systems of linear equations: matrix form. Equivalent systems. Existence of solutions: theorem of Rouché-Frobenius. Homogeneous systems. Resolution of systems of linear equations: resolution by means of the methods of elimination of Gauss and Gauss-Jordan. Resolution of a system of Cramer. Resolution of a general system using the rule of Cramer.
Subject 7. Euclidean vectorial space	Scalar product. Norma. Distance. Orthogonality. Scalar product regarding a base. Orthogonal and orthonormal systems. Vectorial product. Mixed product. Areas and volumes.
Subject 8. Geometry	Three-dimensional affine space. The straight in the affine space. Equations of the straight. The plane in the affine space. Equations of the plane. Relations of incidence between straight and planes. Angles: of two straight, of two planes and of straight and plane. Distances: of a point to a plane, of a straight to a plane and of two straight that cross. Metric study of the conical.
Subject 9. Diagonalization Of endomorphisms and matrices	Vectors and own values. Subspaces Own. Characteristic polynomial. Diagonalization: Conditions. Polynomial nullifier. Theorem of Cayley-Hamilton. Applications.
Subject 10. Convergence in R .	Topology of the straight real: points distinguished, compact groups. Convergent successions in R . Operations with limits. Calculation of limits: indeterminations, rules of Stolz, of the arithmetical and geometrical averages and of the root. Numerical series. Geometrical and telescopic series. Series of positive terms. Criteria of convergence. Series alternated. Criterion of Abel. Absolute convergence. Sumation Of some elementary series.
Subject 11. Limit and continuity of functions of a real variable	Limit of a function in a point. Sequential limit. Properties of the limits. Calculation of limits. Continuity of real functions. Discontinuity: Types. Operations with continuous functions. Relative theorems to the global continuity: continuous image of a compact, theorem of Bolzano-Weierstrass, theorem of Bolzano: consequences. Continuity of the reverse function and of the compound function.
Subject 12. Differential calculation of a variable	Derived from a function in a point. Geometric interpretation of the concept of derivative. The differential. Derived function. Successive derivatives. Relationship between continuity and derivability. Calculation of derivatives: derived from the compound function and the inverse function. Theorems relating to derivable functions: Rolle's theorem, consequences; The mean value theorem, consequences; The rule of L'Hôpital, calculation of indeterminate limits. Taylor polynomials of a function. Taylor's theorem. Problems of highs and lows. Study of concavity and convexity. Turning points. Graphical representation of functions
Subject 13. Integration of functions of a variable	The Riemann integral: partitions, upper and lower sums, upper and lower integral, integral functions, the integral as sum limit. Properties. Theorem of the mean value. The fundamental theorem of integral calculus. Barrow Rule. Primitives. General methods of calculating primitives. Integrals improper. Geometric applications of the integral.
Subject 14. Informatics	Operating systems: classification, components, examples. Programming Fundamentals. Organization of archives. Methods of sorting and searching. Concept and types of databases.
LABORATORY PRACTICE AGENDA	
Practice 1. Introduction to the syntax of a symbolic calculation program.	Basic commands of a symbolic calculation program

Practice 2. Complex Numbers	Complex arithmetic in binomial form. Polar shape. Arithmetic in polar form
Practice 3. Vector Spaces	Operations with vectors. Linear independence of vectors and calculation of bases. Generator systems. Range of a vector system.
Practice 4. Linear Applications	Calculation of the associated matrix. Calculation of the kernel, image and rank
Practice 5. Matrices and determinants	Operations with matrices. Calculation of the determinant of a square matrix. Calculate the range of a matrix and the inverse matrix
Practice 6. Systems of linear equations	Resolution of linear systems. Cramer's Rule and Gauss and Gauss-Jordan Elimination Methods. Applications.
Practice 7. Euclidean Vector Space and Geometry	Calculation of the scalar product, vectorial and mixed. Calculation of areas, volumes, angles and distances. Conical curves
Practice 8. Diagonalization	Calculation of the eigenvalues and eigenvectors of a square matrix. Diagonalization of matrices. Applications
Practice 9. Convergence and Series	Inheritance limit. Application of the convergence criteria of series. Sum of series.
Practice 10. Functions	Calculating the limit of a function at a point. Graphical representation of functions. Study of continuity.
Practice 11. Derivation.	Derivation of functions. Calculation of tangent and normal lines. Problems of relative extremes. Developments in Taylor series. Local study of functions.
Practice 12. Integration	Calculation of primitives. Applications: calculation of areas, volumes, arc lengths, moments of inertia, etc
Subject 13. Informatics	Programming Fundamentals. Development and management of databases

Planning

	Class hours	Hours outside the classroom	Total hours
Introductory activities	1	0	1
Master Session	23	34.5	57.5
Troubleshooting and / or exercises	24	36	60
Laboratory practises	28	14	42
Autonomous practices through ICT	0	10	10
Autonomous troubleshooting and / or exercises	0	14	14
Classroom work	0	14	14
Long answer tests and development	4	0	4
Multiple choice tests	7	0	7
Troubleshooting and / or exercises	0	8	8
Jobs and projects	0	7.5	7.5

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

Methodologies

	Description
Introductory activities	(*) Actividades encamiñadas a tomar contacto, reunir información sobre o alumnado e a presenta-la materia.
Master Session	(*) Exposición de contidos da materia. Empregarase a exposición en pizarra con apoio de sistemas audiovisuais.
	Competencias relacionadas: A1, A5, A56, B9, B10, B11, B12.
Troubleshooting and / or exercises	(*) Formulación, análise, resolución e debate de problemas ou exercicios relacionados coa temática da materia. Empregarase a exposición en pizara con apoio de medios audiovisuais e programas de cálculo.
	Competencias relacionadas: A1, A5, A56, B1, B2, B3, B4, B5, B6, B7, B9, B10, B11, B12.
Laboratory practises	(*) Resolución de problemas relacionados cos contidos teóricos mediante o emprego dun programa de cálculo simbólico, un xestor de base de datos e un programa de edición de textos.
	Competencias relacionadas: A1, A5, A56, B1, B2, B3, B4, B5, B6, B7, B9, B10, B11, B12, B14, B15, B16, B18, B19.
Autonomous practices through ICT	(*) Utilizaránse recursos disponibles en liña, como bases de datos, e empregaráse a plataforma institucional TEMA para o desenvolvemento e realización de diversas tarefas.
	Competencias relacionadas: A56, B1, B2, B3, B4, B5, B13, B14.

Autonomous troubleshooting and / or exercises	(*) Formulaci3n, an3lise, resoluci3n e debate de problemas ou exercicios relacionados coa tem3tica da materia, por parte do alumnado. Proporcionar3nse bolet3ns de problemas correspondentes aos temas programados, que o alumno debe resolver por si mesmo.
Competencias relacionadas: A1, A5, A56, B1, B2, B4, B5, B6, B7, B9, B11, B13, B14, B15.	
Classroom work	(*) Realizaci3n de tarefas aut3nomas relacionadas cos temas programados, que ser3n entregadas empregando a plataforma TEMA para seren avaliadas.
Competencias relacionadas: A1, A5, A56, B1, B2, B4, B5, B6, B7, B9, B11, B13, B14, B15, B16, B18, B19.	

Personalized attention

Methodologies	Description
Troubleshooting and / or exercises	
Laboratory practises	
Classroom work	
Autonomous practices through ICT	
Autonomous troubleshooting and / or exercises	
Tests	Description
Multiple choice tests	
Troubleshooting and / or exercises	
Jobs and projects	

Assessment

	Description	Qualification	Training and Learning Results			
Long answer tests and development	(*)Ten dúas partes: 1. Exame final de contidos teóricos. 2. Exame final de prácticas de laboratorio. Competencias avaliadas: A1, A5, A56, B1, B2, B3, B4, B5, B6, B7, B10, B12, B19	70	B4	C3	D1 D2 D3 D4 D5 D6 D7 D10 D12 D19	
Multiple choice tests	(*)Resolución de probas pechadas consistentes en exercicios con varias respostas alternativas das que o alumno deberá sinalar a verdadeira. Resolución de problemas nas que, utilizando un sistema de cálculo simbólico, deberán proporcionar a resposta do programa ao exercicio correspondente. Competencias avaliadas: A1, A5, A56, B1, B3, B4, B6, B7, B10, B12, B13, B19	10	B4	C3	D1 D3 D4 D6 D7 D10 D12 D13 D19	
Troubleshooting and / or exercises	(*)Resolución de boletíns de problemas e prácticas de laboratorio. Competencias avaliadas: A1, A5, A56, B1, B2, B3, B4, B6, B7,B9, B10, B12, B13, B14, B15, B16, B18	10	B4	C3	D1 D2 D3 D4 D6 D7 D9 D10 D12 D13 D14 D15 D16 D18	

Jobs and projects	(*)Realización de proxectos abertos nos que é preciso empregar diferentes coñecementos adquiridos ao longo do curso.	10	B4	C3	D1 D2 D3 D4 D5 D6 D7 D9 D11 D12 D13 D14 D15 D16 D18 D19
	Competencias avaliadas: A1, A5, A56, B1, B2, B3, B4, B5, B6, B7, B9, B11, B12, B13, B14, B15, B16, B18, B19				

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

Grossman, S. I., **Álgebra Lineal con aplicaciones**, 1991,
 Rojo, J., **Álgebra Lineal**, 2007,
 Burgos, J. de, **Curso de Álgebra y Geometría**, 1980,
 Luzarraga, A., **Problemas resueltos de Álgebra Lineal**,
 Rojo, J. y Martín, I., **Ejercicios y problemas de Álgebra Lineal**, 2005,
 Burgos, J. de, **Cálculo infinitesimal de una variable**, 1994,
 Larson, R. E.; Hostetler, R. P. y Edwards, B. H., **Calculo Volumen I**, 2006,
 Ayres, F. Jr., **Cálculo**, 2001,
 Bradley, G. L. Y Smith, K. J., **Cálculo de una variable**, 1998,
 Checa, E. y otros, **Álgebra, cálculo y mecánica para Ingenieros**, 1997,
 Martínez Salas, J., **Elementos de matemáticas**, 1992,
 Franco Brañas, J. R., **Introducción al cálculo: problemas y ejercicios resueltos**, 2003,
 García, A.; Gracia, F.; López, A.; Rodríguez, G. y de la Villa, A., **Cálculo I: teoría y problemas de análisis matemático de una variable**, 2007,
 Granero, F., **Cálculo integral y aplicaciones**, 2001,
 Rodríguez Riotorto, M., **Primeros pasos en Maxima**, 2008,
 Cerrada Somolinos, J. A., **Fundamentos de programación con Modula-2**, 2000,
 Prieto, A.; Lloris, A. y Torres, J. C., **Introducción a la Informática**, 2006,
 Plasencia López, Z., **Introducción a la Informática**, 2006,
 Rodríguez Riotorto, M., **Manual de Maxima**, 2005,
 Alaminos Prats, J. , Aparicio del Prado, C., Extremera Lizana, J. , Muñoz Rivas, P. y Villena Muñoz, **Prácticas de ordenador con wxMaxima**, 2008,

Recommendations

Subjects that continue the syllabus

Mathematics: Overview of mathematics/P03G370V01203

Subjects that are recommended to be taken simultaneously

Physics: Physics I/P03G370V01102

IDENTIFYING DATA				
Basics of business economics				
Subject	Basics of business economics			
Code	P03G370V01104			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	1st	1st
Teaching language	Spanish Galician			
Department				
Coordinator	García-Pintos Escuder, Adela			
Lecturers	García-Pintos Escuder, Adela			
E-mail	adelagpe@uvigo.es			
Web				
General description	The main aim of this matter is that the students comprise, with a practical and participatory approach, the components and operation of the company. Also it pretends interrelate it with other matters and provide the knowledges, attitudes and necessary skills to develop with efficiency and efficiency, his future professional activity in the world of the companies, and the organisations in general, especially in the forest industry.			

Competencies

Code	
B34	CG-34: Capacidade de organización e planificación de empresas e outras institucións, con coñecemento das disposicións lexislativas que lles afectan e dos fundamentos do marketing e comercialización de produtos forestais.
C4	(*)CE-04: Coñecemento adecuado do concepto de empresa e do marco institucional e xurídico da empresa. Organización e xestión de empresas.
D1	(*)CBI 1: Capacidade de análise e síntese.
D2	(*)CBI 2: Capacidade de organización e planificación.
D3	(*)CBI 3: Capacidade de comunicación oral e escrita tanto na lingua vernácula como en linguas estranxeiras.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.
D7	(*)CBI 7: Adquirir capacidade na toma de decisións.
D11	(*)CBP 4: Habilidades de razoamento crítico.
D13	(*)CBS 1: Aprendizaxe autónoma.

Learning outcomes

Expected results from this subject	Training and Learning Results		
*CE-04: suitable Knowledge of the concept of company and of the institutional and juridical frame of the company. Organisation and management of companies.	B34	C4	D1 D2 D3 D6 D7 D11 D13

(*)Que os estudantes demostren posuír e comprender coñecementos nunha área de estudo que parte da base da educación secundaria xeral e adoita atoparse a un nivel que, malia se apoiar en libros de texto avanzados, inclúe tamén algúns aspectos que implican coñecementos procedentes da vangarda do seu campo de estudo.

(*)Que os estudantes demostren posuír e comprender coñecementos nunha área de estudo que parte da base da educación secundaria xeral e adoita atoparse a un nivel que, malia se apoiar en libros de texto avanzados, inclúe tamén algúns aspectos que implican coñecementos procedentes da vangarda do seu campo de estudo.

Contents

Topic	
1.- THE COMPANY LIKE A COMPLEX SYSTEM	1.1. The system company: components. 1.2. Aims and functions of each component
2.- THE SURROUNDINGS OF THE COMPANY.	2.1. The general surroundings 2.2. The specific surroundings
3.- DIAGNOSTIC And BUSINESS STRATEGY.	3.1 The direction of companies 3.2. The diagnostic of the company: global, functional and DAFO 3.3. The design of strategies

4.- THE HUMAN FACTOR IN THE COMPANY.	4.1.- Business culture 4.2.- The leadership 4.3.- The power in the organisations 4.4.- Direction and management of human resources
5.- ORGANISATIONAL STRUCTURE IN THE COMPANY	5.1.- Concept of organisational structure 5.2.- Parameters of design of the structure 5.3.- The organisation chart 5.4.- Typology of structural groupings 5.5.- New structural forms
6.- INTRODUCTION To THE FUNCTION OF MARKETING And COMMERCIALISATION	6.1.- The system of marketing: basic concepts and decisions of marketing. 6.2.- Investigation of markets 6.3.- Segmentation of markets and positioning of the product. 6.4.- Decisions of marketing
7.- ECONOMIC APPEARANCES-FINANCIAL OF THE COMPANY	7.1.- The investment concepts and types 7.2.- The finance: concepts and types 7.3.- The countable reflection of the economic facts: the balance and the account of losses and gains 7.4.- Economic indicators-financial: the tree of profitability and the deadlock
8.- INTRODUCTION To THE FUNCTION OF PRODUCTION And LOGISTICAL	8.1.- Basic concepts of the system of production and logistical. 8.2.- Objective of the function of production 8.3.- Types of productive systems 8.4.- Planning of the production

Planning

	Class hours	Hours outside the classroom	Total hours
Introductory activities	1	0	1
Master Session	31	62	93
Classroom work	15	22.5	37.5
Short answer tests	2	8	10
Practical tests, real task execution and / or simulated.	1	7.5	8.5

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

Methodologies

	Description
Introductory activities	Activities directed to take contact and gather information about the students, as well as to present the subject.
Master Session	Exhibition of the contents as well as the theoretical bases.
Classroom work	The student will develop exercises or studies of cases in the classroom under the guidelines and supervision of the professor. Also it includes those activities that students will have to carry out previously of autonomous form and his resolution will be debated in the classroom.

Personalized attention

Methodologies	Description
Master Session	The schedule of student attention will be indicated at the beginning of the course
Classroom work	The schedule of student attention will be indicated at the beginning of the course
Tests	Description
Practical tests, real task execution and / or simulated.	The schedule of student attention will be indicated at the beginning of the course

Assessment

	Description	Qualification	Training and Learning Results		
Short answer tests	It is a proof to final of course oriented to the application of the concepts developed	80	B34	C4	D1 D3 D11

Practical tests, real task execution and / or simulated.	Proofs for the evaluation that include activities, problems or practical exercises to resolve. The students have to answer to the activity posed, applying the theoretical and practical knowledges . For this will use the Tics. It will not admit any exercise delivered out of term neither envoy in another half that was not through the platform FAITIC.	20	B34	C4	D1 D2 D3 D6 D7 D11 D13
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Other comments on the Evaluation

This matter gives in FACE-TO-FACE diet by what the students have to assist to the theoretical and practical sessions in the schedule established by the centre. This supposes that the only system of evaluation is the contemplated in this guide. The system of evaluation of the matter supports in three elements:

a) Pass the practical part, with the realisation of the activities programmed. (2 points). b) Pass the theoretical part, by means of an examination written that it will realise in the distinguished date by the centre. (8 points) c) The assistance and participation of students in the theoretical and practical classes.&*l

It is indispensable requirement to add the practical part at least have taken out a 4 on 10 points in the theoretical examination.

The form of evaluation in July and extraordinary is the same that in January. It does not exist possibility to improve the note of the practical part for the announcement of July, since it treats of activities programmed along the course. If the matter is not passed the student will have to study again adapting to the new educational guide.

Sources of information

Basic Bibliography

GARCÍA-TENORIO RONDA, J.; GARCÍA MERINO, M. T.; PÉREZ RODRÍGUEZ, M. J.; SÁNCHEZ QUIRÓS, I. y SANTOS, **Organización y dirección de empresas**, Thomson, 2006

Complementary Bibliography

BUENO CAMPOS, E., **Curso básico de economía de la empresa: un enfoque de organización**, Pirámide, 2005

DE MIGUEL MOLINA, B., **EMPRESA Y ECONOMIA INDUSTRIAL**, MC GRAW HILL, 2010

KOTLER, P.; KELLER, K.L., **Dirección de marketing**, Pearson, 2006

PIÑEIRO, P. et al, **Introducción a la economía de la empresa : una visión teórico-práctica.**, Delta, 2010

SUÁREZ SUÁREZ A. S., **Decisiones óptimas de inversión y financiación en la empresa**, Pirámide, 2005

Recommendations

Other comments

It is not indispensable to have studied economy , since it will realise a more detailed introduction to the matter.

Later, in fourth course of the Degree recommends to study the following matters that deepen in some appearances:

Industrial organisation and processes in the industry of the wood

Innovation and development of products in the industry of the wood.

It is recommended that the students keep upadte the telematic platform of support to the teaching (FAITIC). They will have to request the high to the start of the course to access to the on-line contents, available in the web: <http://faitic.uvigo.es>

IDENTIFYING DATA				
Biology: Plant Biology				
Subject	Biology: Plant Biology			
Code	P03G370V01201			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Basic education	1st	2nd
Teaching language				
Department				
Coordinator	Souto Otero, José Carlos			
Lecturers	Souto Otero, José Carlos			
E-mail	csouto@uvigo.es			
Web	http://webs.uvigo.es/csouto/			
General description	Knowledge of the basic principles of the Vegetal Biology: anatomy, physiology and ecology of the plants.			

Competencies	
Code	
B1	CG-01: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Biolóxicos.
B6	CG-06: Capacidade para identificar os diferentes elementos: elementos bióticos.
B20	CG-20: Coñecemento das bases da mellora forestal e capacidade para a súa aplicación práctica á produción de planta e á biotecnoloxía.
C8	(*)CE-08: Coñecemento das bases e fundamentos biolóxicos do ámbito vexetal na enxeñaría.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.

Learning outcomes				
Expected results from this subject			Training and Learning Results	
They treat and they evaluate the distinguished competitions.			B1	C8
			B6	D6
			B20	

Contents	
Topic	
1.- Introduction to the vegetal Biology.	
2.- General structure of the vegetal cells.	
3.- The cellular division.	
4.- Introduction to the vegetal anatomy.	
Meristems.	
5.- Parenchyma, collenchyma and sclerenchyma.	
6.- Conductive fabrics. The xylem. The phloem.	
7.- Epidermis. The peridermis.	
8.- General structure of the vascular plants.	
9.- The leaf.	
10.- The flower.	
11.- Alternation of generations in haplodiplotes.	
12.- Fecundation.	
13.- The plants and the water.	
14.- Absorption of nutrients.	
15.- The photosynthesis.	
16.- The breath.	
17.- Growth and development.	
18.- Physiology of the seed.	

Planning			
	Class hours	Hours outside the classroom	Total hours
Master Session	20	40	60
Case studies / analysis of situations	2	4	6
Autonomous troubleshooting and / or exercises	1	3	4
Presentations / exhibitions	1	5	6
Laboratory practises	25	25	50

*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	Exhibition of the contents of the *asignatura. They treat the competitions To2, To8, To25 and To61.
Case studies / analysis of situations	Formulation, analysis, resolution and debate of a problem or exercise related with the thematic of the *asignatura. They treat the competitions To2 and *B6.
Autonomous troubleshooting and / or exercises	Formulation, analysis, resolution and debate of a problem or exercise related with the thematic of the *asignatura, by part of the *alumnado. They treat the competitions To2 and *B6.
Presentations / exhibitions	Oral exhibition by part of the *alumnado of a concrete subject or of a work (previous presentation written). They treat the competitions To2, To8, To25 and To61.
Laboratory practises	Application to practical level of the theory of Vegetal Biology in the laboratory. They treat the competitions To2, To8, To25 and To61.
Outdoor study / field practices	Realisation of visits-exits to the field for the observation and study of the plants in his natural surroundings. They treat the competitions To2, To8, To25 and To61.

Personalized attention

Methodologies	Description
Presentations / exhibitions	

Assessment

	Description	Qualification	Training and Learning Results		
Master Session	Examination: proof with questions of short answer and others of long answer. The students have to answer to the questions to show the knowledges purchased on the matter. They evaluate the competitions To2, To8, To25, To61 and *B6.	60	B1 B6 B20	C8	D6
Presentations / exhibitions	It evaluates the preparation of the work and his oral exhibition. They evaluate the competitions To2, To8, To25 and To61.	20	B1 B6	C8	
Laboratory practises	Continuous evaluation of the activities realised in the practices, as well as of the memory that the students have to deliver when finalising the course. They evaluate the competitions To2, To8, To25 and To61.	20	B1 B6 B20	C8	

Other comments on the Evaluation

The second announcement evaluates the same that the ordinary announcement.

Sources of information

Basic Bibliography

Complementary Bibliography

Raven PH, Evert RF & Eichhorn SE, **Biology of plants**, WH Freeman and CP,
 Nabors M.W., **Introducción a la Botánica**, Pearson-Addison Wesley,
 Azcón-Bieto J & Talón M, **Fundamentos de Fisiología Vegetal**, Mc Graw Hill,
 Paniagua R, **Citología e Histología vegetal y animal**, Mc Graw Hill,
 Stern KR, Bidlack JE & Jansky SH, **Introductory plant biology**, Mc Graw Hill,
 Taiz L & Zeiger T, **Plant physiology**, 5ª ed.; Sunderland, MA : Sinauer Associates,

Recommendations

IDENTIFYING DATA				
Physics: Physics II				
Subject	Physics: Physics II			
Code	P03G370V01202			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Basic education	1st	2nd
Teaching language				
Department				
Coordinator	González Fernández, Pio Manuel			
Lecturers	González Fernández, Pio Manuel Hidalgo Robatto, Bettiana Marcela			
E-mail	pglez@uvigo.es			
Web				
General description	Didactic aims Dominate the concepts and physical laws of the thermodynamics and electromagnetism. Differentiate the physical appearances *involucrados in the resolution of a problem of engineering. Analyse, interpret and explain physical situations **cotias. Resolve problems of thermodynamics and electromagnetism applied the engineering. Dominate experimental technicians and handle it of instrumentation for the measure of physical magnitudes. *Design and schedule an experimental setting in team related with appearances of the physics applied. Dominate the acquisition of experimental data and his statistical treatment Dominate technicians of graphic representation and calculation of parameters of adjust. Present a report or technical memory (oral and writing) with utilisation of the new technologies.			

Competencies

Code	
B2	CG-02: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Físicos.
C6	(*)CE-06: Comprensión e dominio dos conceptos básicos sobre as leis xerais da termodinámica e o electromagnetismo e a súa aplicación para a resolución de problemas propios da enxeñaría.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.

Learning outcomes

Expected results from this subject	Training and Learning Results		
Lana relation between competitions *and results, *and he weight of each competition inside wool matter show * in him *pdf *attach.	B2	C6	D6
http://forestales.uvigo.es/sites/default/files/06%20**Fisica%20*II.*Pdf#**overlay-**context=are/**content/competitions-*and-resulted-of-*learning-by-matter			

Contents

Topic	
1.THERMODYNAMICS	1.1. INTRODUCTION TO THE THERMODINAMICS 1.2. THERMODYNAMIC PRINCIPLES 1.3. IDEAL GASES
2.ELECTROSTATICS	2.1. PRINCIPLES OF THE ELECTROSTATICS 2.2. CONDENSERS AND DIELECTRIC 2.3. CONTINUOUS CURRENT
3.ELECTROMAGNETISM	3.1. MAGNETOSTATIC 3.2. ELECTROMAGNETIC INDUCTION 3.3. ALTERNATING CURRENT

Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	20	30	50
Troubleshooting and / or exercises	15	22.5	37.5
Laboratory practises	17	25.5	42.5
Reports / memories of practice	1	15	16
Short answer tests	1.5	0	1.5
Troubleshooting and / or exercises	2.5	0	2.5

*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	Exhibition by part of the professor of the contents of the matter, foundations and theoretical bases and guidelines of the exercises to develop by the student.
Troubleshooting and / or exercises	The professor gives the general guidelines for the resolution of problems or exercises related with the matter. The student has to develop the suitable or correct solutions by means of the application of formulas and the application of procedures.
Laboratory practises	Activities realised in the laboratory of application of the knowledges to concrete situations and of acquisition of basic skills and *procedimentalEs related with the matter. The student adopts an active role, developing diverse actions (realisation of an experiment, setting, manipulation of scientific instrumentation and taking of experimental data) to build his knowledge (graphic representation and deduction of the physical law that governs the experiment).

Personalized attention

Methodologies	Description
Master Session	
Laboratory practises	
Troubleshooting and / or exercises	

Assessment

	Description	Qualification	Training and Learning Results
Reports / memories of practice	Formative evaluation, realised of a continuous way, carried out fundamentally in the classes of laboratory that allows a continuous follow-up and a *realimentación constructive. It will value the presence and active participation in classes and in works *grupales, by means of checklists and by direct observation, and the quality of the works and individual reports and of group.	20	B2 C6 D6
Short answer tests	It will evaluate the theoretical and practical knowledges of the matter using like objective instrument the answer written of several questions of theoretical application-practical.	35	B2 C6 D6
Troubleshooting and / or exercises	It will evaluate the theoretical and practical knowledges of the matter (35%) and the purchased in the classes of laboratory (10%) using like objective instrument the resolution written of problems and/or exercises.	45	B2 C6 D6

Other comments on the Evaluation

In each methodology (Memory of practices, Proof of short answer and Resolution of problems) requires show a basic competition and minimum, that establishes in Apt $\geq$ 30%. Numerical final qualification on scale of 10 points, according to the valid legislation.

Sources of information

Basic Bibliography

Complementary Bibliography

Tipler P.A, **Física**, Barcelona, 1992,
 González P., Lusquiños F, **Fundamentos Físicos para Forestais**, Vigo, 2010,
 Sears F.W., Zemansky M.W., Young H.D., Freedman R.A, **Física**, México, 1999,
 Gettys W.E., Keller F.J., Skove M.J, **Física clásica y moderna**, Madrid, 1992,
 González P., Lusquiños F, **Física en imaxes**, Vigo, 2007,

Recommendations

Subjects that are recommended to be taken simultaneously

Mathematics: Overview of mathematics/P03G370V01203

Subjects that it is recommended to have taken before

Physics: Physics I/P03G370V01102

Mathematics: Mathematics and IT/P03G370V01103

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	C5
Aptitude to apply the knowledges on: differential equations and in partial derivatives, numerical methods, algorithmic numerical, differential geometry, differential calculation and integral.	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

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

IDENTIFYING DATA				
Chemistry: Chemistry				
Subject	Chemistry: Chemistry			
Code	P03G370V01204			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	9	Basic education	1st	2nd
Teaching language				
Department				
Coordinator	Cancela Carral, María Ángeles			
Lecturers	Cancela Carral, María Ángeles			
E-mail	chiqui@uvigo.es			
Web	http://faitic.uvigo.es/			
General description	(*)Esta materia pretende repasar e homoxenizar os conceptos básicos de química con fin de que sirvan de base para outras materias.			

Competencies	
Code	
B3	CG-03: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Químicos.
C7	(*)CE-07: Coñecementos básicos da química xeral, química orgánica e inorgánica e as súas aplicacións na enxeñaría.
D4	(*)CBI 4: Coñecementos básicos de informática.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.
D7	(*)CBI 7: Adquirir capacidade na toma de decisións.
D8	(*)CBP 1: Capacidades de traballo en equipo, con carácter multidisciplinar e en contextos tanto nacionais como internacionais.
D9	(*)CBP 2: Habilidades nas relacións interpersoais.
D11	(*)CBP 4: Habilidades de razoamento crítico.
D13	(*)CBS 1: Aprendizaxe autónoma.
D16	(*)CBS 4: Liderado.
D20	(*)CBS 8: Sensibilidade cara a temas ambientais.

Learning outcomes			
Expected results from this subject		Training and Learning Results	
		B3	C7 D4 D6 D7 D8 D9 D11 D13 D16 D20

The relation between competitions and results, and the weight of each competition inside the matter show in the pdf attach.

http://foretales.uvigo.es/sites/default/files/07%20*Quimica.Pdf#*overlay-*context=is/*content/competitions-and-resulted-of-learning-by-matter

Contents	
Topic	
1. Fundamental concepts.	Atoms. Periodic table. Molecules. Mixes. Units of concentration. Chemical reactions and stoichiometry.
2.- Atomic structure and chemical link.	Quantum mechanical description. Periodic properties. Covalent link. Geometry and hybridisation. Polarity. Ionic link and metallic Link. Intermolecular strengths
3. Gases, solids and liquids. Ideal gas, real gas. Liquid state and solid state.	Ideal gas, real gas. Liquid state and solid state.
4. Thermodynamics and Thermochemical	Energy. Enthalpy. Calorimetry. Free energy and spontaneity.
5.- Chemical balances	Balance Gaseous chemical, acid- Base, solubility, balance redox.
6.- Kinetical chemical	Speed of reaction and kinetical equation
7.- Basic concepts of organic chemistry.	Functional groups, isomerism. Reactions and intervals. Mechanisms of reaction
8.- Basic principles of inorganic chemistry	Metallurgy and chemistry of metals
9.- Chemical industrial.	Ways of operation. Processes and basic operations. Diagrams of flow.

Planning

	Class hours	Hours outside the classroom	Total hours
Laboratory practises	14	22	36
Group tutoring	2	4	6
Presentations / exhibitions	1	5	6
Troubleshooting and / or exercises	16	54	70
Master Session	45	62	107

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

Methodologies

	Description
Laboratory practises	Sessions of laboratory of two hours in groups of two students, of where will explain the appearances applied of the part of the theoretical contents. Each *prácticatiene incorporated a series of questions that have to be delivered before the realisation of the following practical. The competitions worked *aqui are: To60; *B1-*B12; To1; To4; To53; *B7; *B11; *B9; *B12; *B14; *B15; *B16; *B18; *B19; *B20
Group tutoring	*Tutorías Of compulsory assistance, in where the students explain the work realised on a number reduced of exercises proposed previously. The competitions worked *aqui are: To60; To4; *B1; *B12;
Presentations / exhibitions	Each student will have to realise an oral presentation and written of any of the practices realised in the laboratory. The competitions worked here are: To60; *B1; To4; *B3; *B5; *B7; *B12; *B16; *B18; *B19;
Troubleshooting and / or exercises	They will explain and/they will resolve it problems in groups reduced of students from a series of billed facilitated by the professor. The students will have to resolve a small number of exercises for each one of the subjects, that will have to deliver in the term indicated for *sua qualification. The competitions worked *aqui are: To60; *B1-*B12; To4; *B1; *B6; *B7; *B9; *B13
Master Session	Classes in the classroom to numerous groups, in where they explain the corresponding contents to each subject. The competitions worked *aqui are: To60;To1; To4; To53; *B20

Personalized attention

Methodologies	Description
Laboratory practises	They realise you practise them *basandose in the *metodologia of learning by projects.
Group tutoring	They resolve doubts of problems and exercises
Presentations / exhibitions	They present the projects of practices
Troubleshooting and / or exercises	They do seminars in class and deliver exercises to resolve home

Assessment

Assessment	Description	Qualification	Training and Learning Results			
Laboratory practises	(*)Evaluarase o traballo contínuo durante o curso (actitud, implicación e traballo en grupo) Evaluarase a calidade da memoria presentada de forma oral e escrita.	30	B3	C7	D4 D6 D7 D8 D9 D11 D13 D16 D20	
Troubleshooting and / or exercises	(*)Evaluarase a resolución dos exercicios entregados durante o curso.	20	B3	C7	D6 D11 D13	

Master Session	(*)Realizarse un examen final de toda a materia, basado en preguntas tipo test e exercicios numéricos. Así mesmo poderanse realizar exames de control o largo de todo o curso.	50	B3	C7	D6 D20
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Other comments on the Evaluation

Approve the matter involves necessarily approve each one of the activities that the they constitute, so that *non can approve activities independently. Once approved all, the final note will be the sum of each one of the parts.

Sources of information

Basic Bibliography

BROWN, T.L. y otros, **Química: la Ciencia Central**, 7ª, Prentice-Hall, 1998

CHANG, RAYMOND, **Química**, 6ª, McGraw-Hill, 1995

PETRUCCI, HARWOOD, **Química General**, 8ª, Prentice Hall, 2003

Willis, C.J., **Resolucion de problemas de quimica general**, Reverté, 1980

Complementary Bibliography

KOTZ, JOHN C.y otros, **Química y Reactividad Química**, International Thomson,

Recommendations

Subjects that are recommended to be taken simultaneously

Mathematics: Overview of mathematics/P03G370V01203

Mathematics: Mathematics and IT/P03G370V01103

Other comments

*Consideranse Necessary previous requirements the following:

- Know the system of units.
- Know realise basic mathematical calculations.
- Know basic concepts of the type: atoms, element, composed, mix, density, composition *porcentual and inorganic basic formulation.

To surpass the *asignatura is necessary to achieve the less 50% of the qualification of each one of the sections *evaluables. The assistance the face-to-face educational activities are compulsory. Absences in the justified, upper 20% of the hours scheduled, suppose a suspense in each one of the sections and in consequence in the matter.