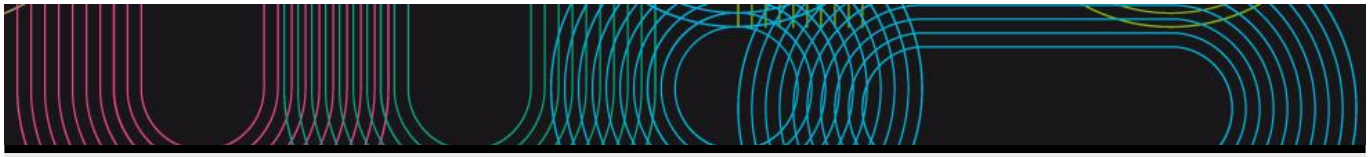

(*)Escola de Enxeñaría Forestal

Presentation

Welcome to the Forestry Faculty (Campus of Pontevedra - University of Vigo). Detailes 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, maaning 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. Juan Picos Martín

Deputy director: Dª. Angeles Cancela Carral

Secretary: D. José Manuel Casas Mirás

Governing bodies:

- Faculty Assembly

- Commissions:

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

Departments in the Centre:

Department of Engineering of the Natural Resources and Environment (http://dir.uvigo.es)

Servizo e Infrastructuras 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	342,11m^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. Enxeñería Eléctrica	110,73 m^2	21	NO	NO
2º	Lab. Enxeñería 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_estudantes.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 3rd

Code	Name	Quadmester	Total Cr.
P03G370V01501	Forest constructions	1st	6
P03G370V01502	Forestry machinery	1st	6
P03G370V01503	Projects	1st	6
P03G370V01504	Environmental Impact	1st	6

P03G370V01505	Forest certification and legislation	1st	6
P03G370V01601	Use of forests	2nd	6
P03G370V01602	Dasometry	2nd	6
P03G370V01603	Repopulation	2nd	6
P03G370V01604	Forestry hydrology	2nd	6
P03G370V01605	Forest management	2nd	6
P03G370V01606	Wood technology	2nd	6
P03G370V01607	Xylo energy	2nd	6
P03G370V01608	Environmental management	2nd	6
P03G370V01609	Environmental Engineering	2nd	6

IDENTIFYING DATA				
Forest constructions				
Subject	Forest constructions			
Code	P03G370V01501			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	1st
Teaching language	Spanish Galician			
Department				
Coordinator	Riveiro Rodríguez, Belén			
Lecturers	Pece Montenegro, Santiago Riveiro Rodríguez, Belén			
E-mail	belenriveiro@uvigo.es			
Web	http://http://faitic.uvigo.es/index.php/es/			
General description	(*)Principios, Coñecementos e Normas nos que se fundamentan as Construccións Forestais e o deseño de Vías Forestais			

Skills	
Code	
B7	Ability to solve technical problems derived from the management of natural spaces.
B9	Knowledge of hydraulics, construction, electrification, forest roads, machinery and mechanization necessary both for the management of forest systems and for their conservation.
C18	Ability to know, understand and use the principles of: forest constructions and forest roads.
D1	Ability to understand the meaning and application of the gender perspective in the different fields of knowledge and in professional practice with the aim of achieving a more just and egalitarian society
D2	Ability to communicate orally and written in Spanish or in English
D4	Sustainability and environmental commitment
D5	Capacity for information management, analysis and synthesis
D6	Organization and planning capacity
D7	Skill in the use of IT tools and ICTs.
D8	Ability to solve problems, critical reasoning and decision making
D9	Teamwork skills, skills in interpersonal relationships and leadership.
D10	Autonomous Learning

Learning outcomes	
Expected results from this subject	Training and Learning Results

2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances.	B7 B9	C18	D1 D2 D4
4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses.			D5 D6 D7
5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial.			D8 D9 D10
6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project.			
9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality.			
11R. 2018 Understanding of the techniques and methods of analysis, project and applicable investigation and his limitations within the scope of the his speciality.			
12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality.			
13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality.			
14R. 2018 Capacity to apply norms of engineering in the his speciality.			
15R. 2018 Knowledge of the social implications, of health and security, environmental, economic and @industrial of the practice in engineering.			
16R. 2018 general Ideas on economic questions, organisational and of management (how management of projects, management of risks and change) in the industrial and entrepreneurial context.			
18R. 2018 Capacity to manage activities or technical projects or complex professionals of the his speciality, assuming the responsibility of the takes of decisions.			
20R. 2018 Capacity to work effectively in national and international contexts, individually and in team, and cooperate with the engineers and people of other disciplines.			

Contents

Topic	
1.- Previous concepts of mechanics and principles of materials resistance.	1.- Moment of a force, Balance of a body, Diagram of the Free Body, Reactions, Unions and supports. 2.- Centers of gravity, centroid, first-order static moment, moment of inertia, spinning radius. 3.- Forces distributed 4.- Curtains 5.- General principles and definitions of the Resistance of Materials.
2.- The elastic solid	1.- Tension state of a point, intrinsic components of tension, stress matrix, stresses, strain matrix. 2.- Diagrams of solicitations. 3.- Introduction to Hyperestaticity, degree of hyperstability, Compatibility Equations of Deformations.
3.- Axial Efforts. Traction-Compression	1.- Traction test of ductile materials. 2.- The elastic regime. Young's Modulus, Poisson's Coefficient. 3.- Uniaxial tensile strain. 4.- Hyperasticity in bars subjected to axial stress.
4.- Introduction to the Cut	1.- Cutting voltage, angular distortion, Rigidity module. 2.- Joints: screws and rivets. 3.- Types of failure in joints by shear stress.
5.- Introduction to Twisting	1.- Elementary theory of torsion in prisms of circular section. 2.- Tension and strain analysis, turning angle.
6.- Introduction to Flexion	1. Beams: definition and classes. Applied forces 2.- Cutting force and bending moment 3.- Relations between shear, bending and load 4.- Cutting and bending diagrams 5.- Types of flexion. Hypothesis and limitations 6.- Normal stresses. Law of Navier 7.- Concept of resistant module 8.- Bending deformations: Differential Equation of the Elastic, Theorems of Mohr. 9.- Hyperelastic Flexing

7- Introduction to Buckling	1.- Buckling instability. 2. Euler's critical load. 3.- Limit of application of the formula of Euler, mechanical slenderness, efficient sections.
8.- Introduction to the analysis of structures	1.- Reticulated structures. 2.- Porticos, semipórticos and pictures. 3.- Initiation to the matrix calculation. 4.- Limit States. 5.- Degrees of Freedom.
9.- Constructive elements: metallic, cement, concrete, wood.	1.- Foundations. Land. 2.- Cement and Concrete. 3.- Industrial Warehouses.
10.- Obligatory standards in construction.	1.- Standards obliged to comply. Building Technical Code. 2.- Eurocode.
11.- Forest roads	1.- Land analysis and soil improvement. 2.- Planning of Roads
12.- Construction Projects	1.- Calculation Systems and Budget. 2.- Systems of contracting and control of works. Pert, Gant. 3.- Quality control of buildings. 4.- Prevention Plan. 5.- Principles of Maintenance.

Planning

	Class hours	Hours outside the classroom	Total hours
Introductory activities	1	1	2
Lecturing	21	42	63
Problem solving	11	22	33
Practices through ICT	9	27	36
Essay	1	8	9
Objective questions exam	1	2	3
Essay questions exam	2	2	4
*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	Efforts to make contact and gather information about the students, and to present the subject.
Lecturing	Presentation by the teacher of the contents on the subject under study, theoretical and / or guidelines for a job, exercise or project to be developed by the student.
Problem solving	Activity which formulated problem and / or exercises related to the course. The student should develop appropriate solutions or right through the exercise routines, application of formulas or algorithms, application processing procedures available information and interpretation of the results. It is often used to complement the lecture.
Practices through ICT	Activities application of knowledge to specific situations, and the acquisition of basic skills and procedural matters related to the object of study, which are held in computer rooms.

Personalized assistance

Methodologies	**Description**
Problem solving	The students will come to the teachers to clarify the concepts necessary to perform the problems and / or exercises performed in the classroom, as well as to clarify / discuss any doubts that may appear after the end of the sessions.
Tests	**Description**
Essay	Students will be able to use face-to-face tutoring, or teledocence tools for correct tutoring by teachers in terms of carrying out work / projects.

Assessment

	Description	Qualification	Training and Learning Results
Essay	Along the course students will develop small projects where they will tackle exercises and cases of study that complement the practical sessions. They will serve to verify the acquisition of the competitions CE-18, CG7, CT5, CT6, CT7, CT8, CT9 and CT10.	15	

Objective questions exam	Several tests will take place along the course to verify that the student is acquiring the competences CE-18 and CG9.	10
Essay questions exam	Final written exam to verify competences CE-18, CG7, CG9, CT1, CT2, CT4, CT5, CT6, CT7, CT8,CT9, CT10.	75

Other comments on the Evaluation

The evaluation tests corresponding to "Essays", as well as "Objective questions exam" are framed within the continuous evaluation tests of the subject, whose weight on the total of the subject is 25%. All students must complete a "Final Exam", with a weight on the overall evaluation of 75%. It will be necessary to reach a minimum grade of 4.5 points out of 10 in the exam, so that the continuous assessment grade is added. The student must obtain a final grade equal to or greater than 5 points out of 10 in order to pass the subject.

Those students who officially renounce continuous assessment, will be evaluated in a single final written exam, assuming in this case 100% of the score.
The final evaluation will be held on the official dates approved by the Forest Engineering School. There will be two evaluation opportunities: 1st opportunity, on 01.13.2020 at 16:00h; 2nd opportunity, on 06/24/2020, at 16:00h. Also, students who enroll in the call for "Final de Carrera", will have the final evaluation on 23/09/2019, at 9:00 am.
The official dates and potential changes are published in the main board of the School and at the website http://forestales.uvigo.es/gl/

Sources of information

Basic Bibliography

Complementary Bibliography

M. Vázquez, **RESISTENCIA DE MATERIALES**, 4,
P. Jiménez Montoya, **HORMIGÓN ARMADO**, 1,
Rafael Dal-Ré Tenreiro, **CAMINOS RURALES. PROYECTO Y CONSTRUCCIÓN**, 1,
MINISTERIO DE FOMENTO, **CODIGO TECNICO DE EDIFICACION**, 1,
Ferdinand P. Beer, **MECÁNICA DE MATERIALES**, 1,

Recommendations

Subjects that continue the syllabus

Hydraulics/P03G370V01404
Use of forests/P03G370V01601
Environmental Impact/P03G370V01504
Forest Fires/P03G370V01802
Primary wood processing industries/P03G370V01706

Subjects that are recommended to be taken simultaneously

Forest certification and legislation/P03G370V01505
Forestry machinery/P03G370V01502
Projects/P03G370V01503

Subjects that it is recommended to have taken before

Graphic expression: Graphic expression and cartography/P03G370V01101
Physics: Physics II/P03G370V01202
Mathematics: Overview of mathematics/P03G370V01203
Mathematics: Mathematics and IT/P03G370V01103
Chemistry: Chemistry/P03G370V01204
Topography, remote sensing and geographic information systems/P03G370V01403

Contingency plan

Description

=== EXCEPTIONAL PLANNING ===
Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University of Vigo establishes an extraordinary planning that will be activated when the administrations and the institution itself determine it, considering safety, health and responsibility criteria both in distance and blended learning. These already planned measures guarantee, at the required time, the development of teaching in a more agile and effective way, as it is known in advance (or well in advance) by the students and teachers through the standardized tool.

=== ADAPTATION OF THE METHODOLOGIES ===

* Teaching methodologies maintained

* Teaching methodologies modified

* Non-attendance mechanisms for student attention (tutoring)

* Modifications (if applicable) of the contents

* Additional bibliography to facilitate self-learning

* Other modifications

=== ADAPTATION OF THE TESTS ===
* Tests already carried out
Test XX: [Previous Weight 00%] [Proposed Weight 00%]
...

* Pending tests that are maintained
Test XX: [Previous Weight 00%] [Proposed Weight 00%]
...

* Tests that are modified
[Previous test] => [New test]

* New tests

* Additional Information

IDENTIFYING DATA				
Forestry machinery				
Subject	Forestry machinery			
Code	P03G370V01502			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	1st
Teaching language	Spanish			
Department				
Coordinator	Diz Montero, Rubén			
Lecturers	Diz Montero, Rubén			
E-mail	rubendiz@uvigo.es			
Web				
General description	In this **asignatura pretends that he student *purchase *the *essential *knowledges that reads allow to comprise he *operation of wools machines *employed in wools forest *industries, that *know *the types of machines and *installations *more important *and *his *components. *His *knowledge results basic for him *analysis of him *operation, *design *and *construction of wools machines *and of *the teams associated the same *wools, *and in *general wools *industrial *applications in that they are used.			

Skills	
Code	
B9	Knowledge of hydraulics, construction, electrification, forest roads, machinery and mechanization necessary both for the management of forest systems and for their conservation.
B11	Ability to characterize the anatomical and technological properties of wood and non-timber forest raw materials, as well as the technologies and industries of these raw materials.
C20	Ability to know, understand and use the principles of forestry machinery and mechanization.
D2	Ability to communicate orally and written in Spanish or in English
D5	Capacity for information management, analysis and synthesis
D8	Ability to solve problems, critical reasoning and decision making

Learning outcomes	
Expected results from this subject	Training and Learning Results

2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances. 3R. 2018 Be conscious of the multidisciplinary context of the engineering. 4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses. 5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial. 6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project. 7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering. 8R. 2018 Capacity to realize bibliographic researches, consult and use databases and other sources of information with discretion, to realize @simulación and analysis with the objective to realize investigations on technical subjects of the his speciality. 9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality. 11R. 2018 Understanding of the techniques and methods of analysis, project and applicable investigation and his limitations within the scope of the his speciality. 12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality. 13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality. 20R. 2018 Capacity to work effectively in national and international contexts, individually and in team, and cooperate with the engineers and people of other disciplines. 21R. 2018 Capacity to recognize the need of a continuous training and realize this activity of independent way during his professional life. 22R. 2018 Capacity to be to the day of the scientific and technological news.	B9 B11	C20	D2 D5 D8

Contents	
Topic	
1. Thermal machines. Generalities	Classification, theoretical appearances and principles of operation. Types of engines employed in forest machines.
2. Study of Thermal Engines	Engines of lit caused. Engines of lit by compression.
3. Study of compressors	Types of compressors. Installations of compression of air and pneumatic circuit.
4. Machinery used in forestry explotatrions.	Types of machines. Hydraulic circuits. Bombs and hydraulic engines
5. Machinery used in forestry industries	Installations and circuits

Planning			
	Class hours	Hours outside the classroom	Total hours
Lecturing	29	86	115
Presentation	2	10	12
Laboratory practical	14	6	20
Objective questions exam	1	0	1
Problem and/or exercise solving	2	0	2
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Methodologies	
	Description
Lecturing	Exhibition by part of the professor of the contents of the matter object of study. Resolution of problems and/or exercises related with the *asignatura
Presentation	Realisation of works in groups on thematic specific and presentation of the same in the classroom
Laboratory practical	Work with real machines in the laboratory to complement the contents of the matter, completed with some practice with specific software. Preparation of memories of practices.

Personalized assistance	
Methodologies	**Description**

Lecturing		
Laboratory practical		
Presentation		

Assessment				
	Description	Qualification	Training and Learning Results	
Lecturing	Participation in the class. Proposal of **cuestions of theory justified on the content given.	0	C20	
Presentation	Realisation of works on the content of the **asignatura. Exhibition in the classroom.	20	C20	D5
Laboratory practical	Realisation of practices of laboratory and delivery of memories on the same.	20	C20	D5
Objective questions exam	Resolution of questionnaire of theory type test.	25	C20	D5
Problem and/or exercise solving	Resolution of problems and/or exercises related with the *temario of the **asignatura.	35	C20	D5

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

Moran J and Shapiro H, **Fundamentos de Termodinámica Técnica**, 2004,

Çengel Y. y Boles M., **Termodinámica**, 7ª edicion (2011),

Payri F. y Desantes J.M., **Motores de combustión interna alternativos**, 2011,

Agüera Soriano J., **Termodinámica Lógica y Motores Térmicos**, 1993,

Creus Solé A., **Neumática e Hidráulica**, 2010,

IDAE, **Biomasa : maquinaria agrícola y forestal**, 2007,

Recommendations

Subjects that continue the syllabus

Primary wood processing industries/P03G370V01706

Subjects that it is recommended to have taken before

Physics: Physics I/P03G370V01102
Physics: Physics II/P03G370V01202
Mathematics: Mathematics and IT/P03G370V01103
Hydraulics/P03G370V01404

Contingency plan

Description

=== EXCEPTIONAL PLANNING ===
Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University of Vigo establishes an extraordinary planning that will be activated when the administrations and the institution itself determine it, considering safety, health and responsibility criteria both in distance and blended learning. These already planned measures guarantee, at the required time, the development of teaching in a more agile and effective way, as it is known in advance (or well in advance) by the students and teachers through the standardized tool.

=== ADAPTATION OF THE METHODOLOGIES ===
* Teaching methodologies maintained

* Teaching methodologies modified

* Non-attendance mechanisms for student attention (tutoring)

* Modifications (if applicable) of the contents

* Additional bibliography to facilitate self-learning

* Other modifications

=== ADAPTATION OF THE TESTS ===
* Tests already carried out
Test XX: [Previous Weight 00%] [Proposed Weight 00%]
...

* Pending tests that are maintained
Test XX: [Previous Weight 00%] [Proposed Weight 00%]
...

* Tests that are modified
[Previous test] => [New test]

* New tests

* Additional Information

IDENTIFYING DATA				
Projects				
Subject	Projects			
Code	P03G370V01503			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	1st
Teaching language	Spanish			
Department				
Coordinator	Valero Gutiérrez del Olmo, Enrique María			
Lecturers	Valero Gutiérrez del Olmo, Enrique María			
E-mail	evalero@uvigo.es			
Web	http://http://faitic.uvigo.es/index.php/es/			
General description	(*)Esta materia é de carácter eminentemente aplicado e co obxectivo de que os alumnos adquiran os coñecementos básicos mediante a aprendizaxe dos conceptos, terminoloxía, teoría, e metodoloxía necesarios para ser capaz de entender, formular e resolver un proxecto.			

Skills	
Code	
B13	Ability to design, direct, elaborate, implement and interpret projects and plans, as well as to write technical reports, recognition reports, assessments, appraisals and appraisals.
B14	Ability to understand, interpret and adopt scientific advances in the forest field, to develop and transfer technology and to work in a multilingual and multidisciplinary environment
C22	Ability to know, understand and use the principles of: methodology, organization and project management.
C42	Ability to do an original work to be presented and defended before a university court, consisting of a project in the field of specific technologies of Forest Engineering, of a professional nature in which the competences acquired in the teachings and subjects of the career.
D2	Ability to communicate orally and written in Spanish or in English
D4	Sustainability and environmental commitment
D5	Capacity for information management, analysis and synthesis
D6	Organization and planning capacity
D8	Ability to solve problems, critical reasoning and decision making

Learning outcomes	
Expected results from this subject	Training and Learning Results

2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances. 3R. 2018 Be conscious of the multidisciplinary context of the engineering. 4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses. 5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial. 7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering. 8R. 2018 Capacity to realize bibliographic researches, consult and use databases and other sources of information with discretion, to realize @simulación and analysis with the objective to realize investigations on technical subjects of the his speciality. 9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality. 10R. 2018 Capacity and capacity to project and realize experimental investigations, interpret results and obtain conclusions in the his field of study. 11R. 2018 Understanding of the techniques and methods of analysis, project and applicable investigation and his limitations within the scope of the his speciality. 13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality. 15R. 2018 Knowledge of the social implications, of health and security, environmental, economic and @industrial of the practice in engineering. 20R. 2018 Capacity to work effectively in national and international contexts, individually and in team, and cooperate with the engineers and people of other disciplines. 21R. 2018 Capacity to recognize the need of a continuous training and realize this activity of independent way during his professional life. 22R. 2018 Capacity to be to the day of the scientific and technological news.			
3R. 2018 Be conscious of the multidisciplinary context of the engineering. 4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses. 5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial. 6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project. 7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering. 9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality. 11R. 2018 Understanding of the techniques and methods of analysis, project and applicable investigation and his limitations within the scope of the his speciality. 12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality. 13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality. 14R. 2018 Capacity to apply norms of engineering in the his speciality. 15R. 2018 Knowledge of the social implications, of health and security, environmental, economic and @industrial of the practice in engineering. 16R. 2018 general Ideas on economic questions, organisational and of management (how management of projects, management of risks and change) in the industrial and entrepreneurial context. 18R. 2018 Capacity to manage activities or technical projects or complex professionals of the his speciality, assuming the responsibility of the takes of decisions.	B13 B14	C22 C42	D2 D4 D5 D6 D8

Contents	
Topic	
Theme I. The project as a concept	- Definition and philosophy of the project - The project cycle

Theme II. The project as a method. Project engineering	- Project methodology. Reliability study - Preliminary project or preliminary project -Project detailed -Project planning - Socio-economic evaluation of projects -Evaluation of projects -Analysis of risk in the evaluation of projects.
Theme III. The project as document	- Content of project documents -Memory -Blueprints -Technical specifications -Budget -Health and Safety issues
Theme IV. The professional activity and the project	- The contracting of technical assistance for the drafting of projects. -The contest of projects and execution of works -The activity of project engineer -The rates of fees.
Theme V. Forestry projects	- Forest projects - Projects in Forest Industry -Silvicultural and Forest Management Projects -Forest infrastructures - Hunting projects -Fishing projects. -Projects for recreation and public use -Projects for the management of protected areas.

Planning

	Class hours	Hours outside the classroom	Total hours
Presentation	75	0	75
Project based learning	38	0	38
Discussion Forum	12	0	12
Debate	13	0	13
Objective questions exam	2	0	2
Essay	0	10	10

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

Methodologies

	Description
Presentation	Exhibition by the students to the teacher and / or a group of students of a subject matter or content of the results of a job, exercise, project ... It can be done individually or in groups.
Project based learning	Performing activities that allow the cooperation of various subjects and students face, working together, to open problems. Allow coaching, among others, the cooperative learning skills, leadership, organizational, communication and strengthening relationships.
Discussion Forum	Activity within a virtual environment in which they discussed various topics related to the academic and / or professional.
Debate	Open discussion between a group of students. You can focus on a topic of subject content, the analysis of a case, the outcome of a project, exercise or problem previously developed a keynote address ...

Personalized assistance

Methodologies	Description
Presentation	It will explain the matter and the method of evaluation
Project based learning	It will make during the subject a preliminary draft
Discussion Forum	They will boost the discussions and debates in class
Debate	They will boost the discussions and debates in class

Assessment

	Description	Qualification	Training and Learning Results
Presentation	Final examinations, or by writing of type editorial or development of one or several subjects, or of type test, or combined or, in his case oral examinations	0	

Project based learning	Realisation of a technical preliminary draft of character *semi-professional	40	D2 D6 D8
Objective questions exam	Final examinations, or by writing of type editorial or development of one or several subjects, or of type test, or combined or, in his case oral examinations	40	
Essay	Continuous evaluation of the student through his assistance and participation, so much in the classes as in debates and forums of discussion	20	D6 D8

Other comments on the Evaluation

Official dates and any modification will be accesible in the official notice board and in the web page http://forestales.uvigo.es/gl/

Sources of information

Basic Bibliography

Complementary Bibliography

BERGILLOS MADRID, J.M, **Metodología de diseño de proyectos**, 1989.,

DE COS CASTILLO, M, **Teoría general del proyecto. Dirección de proyectos**, 1995,

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PEÑA, A., **Apuntes de Proyectos: Proyectos de Ingeniería y Documento Proyecto.**, 1997,

GÓMEZ SENENT, E., **Las fases del proyecto y su metodología.**, 1992,

HEREDIA, R., **Dirección integrada de proyecto. Segunda edición**, 1995,

CORZO, M.A., **Introducción a la ingeniería de proyectos**, 2002,

TRUEBA, Y., A. CAZORLA y J.J. DE GRACIA, **Proyectos empresariales. Formulación y Evaluación**, 1995,

ROMERO, C, **Teoría de la decisión multicriterio: conceptos, técnicas y aplicaciones.**, 2005,

PIQUER, J.S, **El proyecto en ingeniería y arquitectura**, 2003,

ESCRIVA, I.V., J.L.. PEREZ-SALAS y V. SEGURA, **Cuadro de precios. Ingeniería agronómica y alimentaria**, 1996,

SAPAG CHAIN, N, **Fundamentos de Preparación y Evaluación de Proyectos**, 2005,

MORRILLA ABAD, IGNACIO, **Guía metodológica y práctica para la realización de proyectos.**, 1998,

Recommendations

Subjects that are recommended to be taken simultaneously

Use of forests/P03G370V01601
Forest constructions/P03G370V01501
Forestry hydrology/P03G370V01604
Forest management/P03G370V01605
Repopulation/P03G370V01603

Subjects that it is recommended to have taken before

Physics: Physics I/P03G370V01102
Physics: Physics II/P03G370V01202
Mathematics: Overview of mathematics/P03G370V01203
Mathematics: Mathematics and IT/P03G370V01103
Botany/P03G370V01303
Electrotechnology and rural electrification/P03G370V01304

Contingency plan

Description

=== EXCEPTIONAL PLANNING ===
Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University of Vigo establishes an extraordinary planning that will be activated when the administrations and the institution itself determine it, considering safety, health and responsibility criteria both in distance and blended learning. These already planned measures guarantee, at the required time, the development of teaching in a more agile and effective way, as it is known in advance (or well in advance) by the students and teachers through the standardized tool.

=== ADAPTATION OF THE METHODOLOGIES ===
* Teaching on line
Use of institutional on-line teaching platform Campus Remoto in a synchronous way for the theoretical classes including basics, foundations, as well as general guidelines for resolution of problems and practical cases. Specific didactic materials

adapted for on line teaching will be prepared e.g. Video or presentations, graphic resources, software, etc. All the resources will be available through FAITIC platform.
* Mechanism face-to-face of attention to the students (tutorials)
Personalized attention. Communication by email or another on-line tool. Tutorials via Campus Remoto platform.
=== ADAPTATION OF The EVALUATION ===
On-line tests and tasks via Campus Remoto and Faitic. The weight of the tests will be maintained as they are described in the main guide.

IDENTIFYING DATA				
Environmental Impact				
Subject	Environmental Impact			
Code	P03G370V01504			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	1st
Teaching language	Spanish Galician			
Department				
Coordinator	Álvarez Bermúdez, Xana			
Lecturers	Álvarez Bermúdez, Xana			
E-mail	xana.alvarez.bermudez@gmail.com			
Web				
General description	(*)(*)En esta materia se trata de compatibilizar la actividad humana con el medio ambiente de tal manera que se puedan prever y prevenir los impactos que sobre los diversos factores del medio provocan determinadas actuaciones y/o actividades, tratando de minimizarlos o reducirlos.			

Skills	
Code	
B1	Ability to understand the biological, chemical, physical, mathematical and representation systems necessary for the development of professional activity, as well as to identify the different biotic and physical elements of the forest environment and renewable natural resources susceptible to protection, conservation and exploitations in the forest area.
B2	Ability to analyze the ecological structure and function of forest systems and resources, including landscapes.
B3	Knowledge of degradation processes that affect forest systems and resources (pollution, pests and diseases, fires, etc.) and capacity for the use of forest environment protection techniques, forest hydrological restoration and biodiversity conservation .
B4	Ability to evaluate and correct the environmental impact, as well as apply the techniques of auditing and environmental management.
C19	Ability to know, understand and use the principles of: evaluation and correction of environmental impact; recovery of degraded spaces.
D4	Sustainability and environmental commitment
D5	Capacity for information management, analysis and synthesis
D6	Organization and planning capacity
D8	Ability to solve problems, critical reasoning and decision making
D10	Autonomous Learning

Learning outcomes	
Expected results from this subject	Training and Learning Results

2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances.	B1 B2 B3	C19	D4 D5 D6
3R. 2018 Be conscious of the multidisciplinary context of the engineering.	B4		D8
4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses.			D10
5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial.			
6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project.			
7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering.			
12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality.			
14R. 2018 Capacity to apply norms of engineering in the his speciality.			
15R. 2018 Knowledge of the social implications, of health and security, environmental, economic and @industrial of the practice in engineering.			
17R. 2018 Capacity to collect and interpret data and handle complex concepts inside the his speciality, to issue judgements that involve a reflection on ethical and social questions			
20R. 2018 Capacity to work effectively in national and international contexts, individually and in team, and cooperate with the engineers and people of other disciplines.			

Contents	
Topic	
MODULE I: GENERAL FRAME	The Environmental System
Subject 1	Introduction The environmental system environmental Problems sustainable Development and the environmental management
MODULE I: GENERAL FRAME	Basic principles of the environmental politics
Subject 2	Antecedents: The protocol of Kioto The forests in his paper of carbon sink
MODULE I: GENERAL FRAME	Environmental programmes of action of the European Union
Subject 3	1º Program (1973-1976) 2º Program (1977-1981) 3º Program (1982-1986) 4º Program (1987-1992) 5º Program (1992-2000) 6º Program (2001-2010) 7º Program (2014-2020)
MODULE I: GENERAL FRAME	Environmental management and his Instruments
Subject 4	Definition general Principles of the environmental management Instruments of environmental management environmental Management in the public sector Systems of Environmental Management
MODULE II: INTRODUCTION To THE ENVIRONMENTAL IMPACT	Legal and institutional frame
Subject 5	Antecedents Community Legislation on Normative environmental evaluation Spaniard in the national field autonomic Rule sectorial Rule

MODULE II: INTRODUCTION To THE ENVIRONMENTAL IMPACT Subject 6	Analysis and environmental value of the geographic space environmental Variable Introduction Differentiation of environmental units Phases
MODULE II: INTRODUCTION To THE ENVIRONMENTAL IMPACT Subject 7	Environmental impact Introduction Hit associated to the human activities Relation causes effect Classes of impacts Attributes of the environmental impact
MODULE II: INTRODUCTION To THE ENVIRONMENTAL IMPACT Subject 8	Indicators of Environmental Impact Concept Classification of indicators Models of indicators Environmental Indicators in the field of the European Union Environmental Indicators in Spain
MODULE III: EVALUATION OF ENVIRONMENTAL IMPACT Subject 9	Evaluation of environmental impact. Strategic evaluation strategic environmental Evaluation ordinary strategic environmental Evaluation simplified Evaluation of ordinary environmental impact Evaluation of environmental impact simplified environmental Evaluation of activities
Module IV: CORRECTION OF ENVIRONMENTAL IMPACTS Subject 10	Corrector measures, protective and compensatory
Module IV: CORRECTION OF ENVIRONMENTAL IMPACTS Subject 11	Program of Environmental Surveillance Document of Synthesis
Module IV: CORRECTION OF ENVIRONMENTAL IMPACTS Subject 12	environmental impact assessment and eco-audits (comparison)
Module V: PRACTICAL CASES Subject 13	Practical cases

Planning

	Class hours	Hours outside the classroom	Total hours
Case studies	30	0	30
Mentored work	60	0	60
Lecturing	40	17	57
Objective questions exam	1	0	1
Essay	2	0	2

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

Methodologies

	Description
Case studies	Analysis of an event, issue or actual event in order to know, interpret, solve, generate hypotheses, comparing data, reflect, complete knowledge, diagnose and training in alternative dispute resolution procedures.
Mentored work	Students develop exercises or classroom projects under the guidance and supervision of the teacher. May link autonomous development of student activities.
Lecturing	Theory sessions by the teacher

Personalized assistance

Methodologies	Description

Mentored work	Resolution of doubts raised
Case studies	Resolution of doubts raised
Lecturing	Resolution of doubts raised
Tests	**Description**
Objective questions exam	Resolution of doubts raised
Essay	Exam of the taught syllabus

Assessment

	Description	Qualification	Training and Learning Results
Objective questions exam	It makes one tests type test and of long answer at the end of the subject to way of final examination on the content of the *temario that have developed in the course and on the matters of the visits and practices evaluate the basic competitions *CB1 and *CB2, the generals *CG6, *CG7, *CG8, *CG9, *CG13, *CG14, *CG17, *CG18 and *CG19, the specific *CE19 (*CE 19.1 to 19.19) and the transversal *CT1, *CT2, *CT11, *CT14, *CT15 and *CT20	50	
Essay	The work presented will have to have an important part of technical content and will value his innovation regarding thematic and development, His evaluation will be included in the study of cases. The additional assessment will be consequence of the obtaining of the aims posed initially Evaluate the basic competitions *CB1 and *CB2, the generals *CG6, *CG7, *CG8, *CG9, *CG13, *CG14, *CG17, *CG18 and *CG19, the specific *CE19 (*CE 19.1 to 19.19) and the transversal *CT1, *CT2, *CT11, *CT14, *CT15 and *CT20	50	

Other comments on the Evaluation

Official dates and any modification will be accesible in the official notice board and in the web page http://forestales.uvigo.es/gl/

Sources of information

Basic Bibliography

Complementary Bibliography

Recommendations

Contingency plan

Description

=== EXCEPTIONAL MEASURES SCHEDULED ===
In front of the uncertain and unpredictable evolution of the sanitary alert caused by the *COVID-19, the University of Vigo establishes an extraordinary planning that will activate in the moment in that the administrations and the own institution determine it attending to criteria of security, health and responsibility, and guaranteeing the teaching in a no face-to-face stage or partially face-to-face. These already scheduled measures guarantee, in the moment that was prescriptive, the development of the teaching of a more agile and effective way when being known in advance (or with a wide *antelación) by the students and the *profesorado through the tool normalised and institutionalised of the educational guides.

=== ADAPTATION OF THE METHODOLOGIES ===
* educational Methodologies that keep
The educational methodology will be the same, simply that will change the *face to face class by the virtual modality.

* Educational methodologies that modify :
In the schedules established in the official calendars of the centre, will give sessions through the platform of the University of Vigo (remote campus)

* Mechanism no face-to-face of attention to the students (*tutorías):

The individual sesions will make through the virtual office of each professor (Xana Álvarez: room 71). The student will send a mail previously to agree the day and time

* Modifications (if they proceed) of the contents to give: they keep

* additional Bibliography to facilitate the car-learning: it will leave available in faitic

* Other modifications

=== ADAPTATION OF THE EVALUATION ===
* Test already made
Tests type test: [previous Weight 70%] [Weight Proposed 70%]
weekly Exposition: [previous Weight 70%] [Weight Proposed 70%]
...

* Pending proofs that keep
Tests type test: [previous Weight 70%] [Weight Proposed 70%]
weekly Expositions: [previous Weight 70%] [Weight Proposed 70%]
...

* Proofs that modify : they do not modify , only they will make of virtual form in place of face-to-face
[previous Proof] =&*gt; [new Proof]

* New proofs: no

* additional Information

IDENTIFYING DATA

Forest certification and legislation

Subject	Forest certification and legislation			
Code	P03G370V01505			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	1st
Teaching language				
Department				
Coordinator	Álvarez Bermúdez, Xana			
Lecturers	Álvarez Bermúdez, Xana			
E-mail	xana.alvarez.bermudez@gmail.com			
Web	http://www.faitic.uvigo.es			
General description	(*)Los futuros técnicos forestales deben conocer la legislñación que les afecta y para ello deben conocer desde el inicio los procesos de tramitación y los Organismos que legislan y ejecutan las leyes.			

Skills

Code	
B1	Ability to understand the biological, chemical, physical, mathematical and representation systems necessary for the development of professional activity, as well as to identify the different biotic and physical elements of the forest environment and renewable natural resources susceptible to protection, conservation and exploitations in the forest area.
B2	Ability to analyze the ecological structure and function of forest systems and resources, including landscapes.
B10	Ability to apply the techniques of forest management and land planning, as well as the criteria and indicators of sustainable forest management within the framework of forest certification procedures.
C25	Ability to know, understand and use the principles of: forest legislation and certification; sociology and forestry policy.
D4	Sustainability and environmental commitment
D5	Capacity for information management, analysis and synthesis
D6	Organization and planning capacity
D8	Ability to solve problems, critical reasoning and decision making
D9	Teamwork skills, skills in interpersonal relationships and leadership.
D10	Autonomous Learning

Learning outcomes

Expected results from this subject	Training and Learning Results		
2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances. 3R. 2018 Be conscious of the multidisciplinary context of the engineering. 5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial. 6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project. 12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality. 14R. 2018 Capacity to apply norms of engineering in the his speciality. 15R. 2018 Knowledge of the social implications, of health and security, environmental, economic and @industrial of the practice in engineering. 17R. 2018 Capacity to collect and interpret data and handle complex concepts inside the his speciality, to issue judgements that involve a reflection on ethical and social questions 20R. 2018 Capacity to work effectively in national and international contexts, individually and in team, and cooperate with the engineers and people of other disciplines. 21R. 2018 Capacity to recognize the need of a continuous training and realize this activity of independent way during his professional life. 22R. 2018 Capacity to be to the day of the scientific and technological news.	B1 B2 B10	C25	D4 D5 D6 D8 D9 D10

Contents

Topic	
BASIC LEGISLATION I	1.- Right: The concept of law, Classification, sources and basic principles in Spanish legal framework. 2.- Spanish Constitution: Study as a whole, Principles, spanish constitution, reform constitutional. 3.- Congress and Senate: Elaboration of laws, Electoral law, prerogatives of Members and Senators, the congress of deputies (Composition, election, mandate, duration, Functions, etc.), the senate (composition, election, Mandate, duration, functions, etc.). 4.- Galician Parliament: Background, Parliamentary study as a whole, initiative Legislation, competition from Galicia, Galicia, sources of autonomic law. 5.- The European Union: Objectives of the U.E., Evolution, institutions, sources and principles. 6.- Organization of the state: Municipalities, Provinces and autonomous communities. 7.- Judicial branch and other institutions: Introduction, division of powers, defender of Town, general council of the judiciary, Courts, hearing and other institutions. 8.- Relations between citizens and Public administrations: Introduction, law Administrative, administrative act, classes, phases Of the procedure, administrative remedies. The Law of administrative procedure.
LEGISLATION II	9.- Contracts Law: Classes, forms of contracting, Content and effects of contracts Administrative, compliance with contracts Administrative, resolution, termination and resignation. 10.- Forest property: Concept of property, Legal concept of the hill, classification of the hill. 11.- Law of mountains: Complete study of the Law Forest fires (43/2003 and 10/2006). 12.- Development of the law at the regional level: Proposed draft of the new Mountains of Galicia. 13.- Neighborhood forests in common hand: Legislation, concept, characteristics, process Legalization, organization, statutes, administration. 14.- Other forest-related laws: Fires. Law of the land bank of Galicia, Decree of the Units of Forest Management. 15.- Hunting and fishing legislation. Law of Conservation of biodiversity. Legislation of Natural spaces and conservation of Nature (Natura 2000 Network) and environment. Law of landscape, etc.
FOREST CERTIFICATION	16.- The protection of forests in the world After the 1992 Rio Summit. 17.- International Management Initiatives Sustainable Forestry. 18.- Ministerial Conferences for the Protection of forests in Europe. 19.- Other global processes: Montreal, Tarapoto, dry Africa, etc. 20.- Sustainable Forest Management. 21.- Forest certification: Processes and Initiatives. 22.- Criteria and indicators. 23.- UNE 162,000 standards in Spain 24.- Current systems more implemented: PEFC and FSC. 25.- Practical forms of forest certification.

Planning			
	Class hours	Hours outside the classroom	Total hours
Case studies	45	19	64
Presentation	45	15	60
Lecturing	12	10	22
Objective questions exam	1	0	1
Presentation	3	0	3

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

Methodologies	
	Description
Case studies	Individual preparation or by couples of a subject chosen inside the contents of the program for the preparation of a situation or concrete case that it will be presented and evaluated by the mates at the end of the course. They develop the basic competitions *CB1 and *CB2, the generals *CG08, *CG09 and *CG3, the specific *CE25 and the transversal *CBI1, *CBI2, *CBP4, *CBS2, *CBS3 and *CBS 8.
Presentation	They will develop presentations by part of the student of the subjects assigned previously in class
Lecturing	Exposition by the professor

Personalized assistance	
Methodologies	**Description**
Case studies	They will make reviews and debates on subjects of actuality
Presentation	They will develop presentations by part of the student of the subjects assigned previously in class
Tests	**Description**
Presentation	They will develop presentations by part of the student of the subjects assigned previously in class

Assessment				
	Description	Qualification	Training and Learning Results	
Objective questions exam	It makes one tests type test at the end of the subject to way of final examination on the content of the *temario that have developed in the course and on the matters of the visits and practical. *evaluan The basic competitions *CB1 and *CB2, the generals *CG08, *CG09 and *CG3, the specific *CE25 (*CE 25.1 to 25.19) and the transversal *CBI1, *CBI2, *CBP4, *CBS2, *CBS3 and *CBS 8.	50	C25	D5 D10
Presentation	They will make weekly presentations of the subjects assigned previously	50	C25	D5 D6 D8 D9 D10

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

Recommendations

Contingency plan

Description

=== EXCEPTIONAL MEASURES SCHEDULED ===

In front of the uncertain and unpredictable evolution of the sanitary alert caused by the *COVID-19, the University of Vigo establishes an extraordinary planning that will activate in the moment in that the administrations and the own institution determine it attending to criteria of security, health and responsibility, and guaranteeing the teaching in a no face-to-face stage or partially face-to-face. These already scheduled measures guarantee, in the moment that was prescriptive, the development of the teaching of a more agile and effective way when being known in advance (or with a wide *antelación) by the students and the *profesorado through the tool normalised and institutionalised of the educational guides.

=== ADAPTATION OF THE METHODOLOGIES ===

* educational Methodologies that keep

keeps the subjects and the methodology of weekly exposition by students

* educational Methodologies that modify

will changue from the face-to-face modality to the virtual through the virtual campus.

* Mechanism no face-to-face of attention to the students (*tutorías): through email and of the virtual dispatch of the professor

* Modifications (if they proceed) of the contents to give: without modifications

* additional Bibliography to facilitate the car-learning: without modifications

* Other modifications

=== ADAPTATION OF THE EVALUATION ===
* Test already made: they keep
Proof XX: [previous Weight 00%] [Weight Proposed 00%]
...

* Pending proofs that keep : all are supported by the same weight
Tests XX: [previous Weight 00%] [Weight Proposed 00%]
...

* Proofs that modify : there are not modifications
[previous Proof] =&*gt; [new Proof]

* New proofs: they will not make new test

* additional Information

IDENTIFYING DATA				
Use of forests				
Subject	Use of forests			
Code	P03G370V01601			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	2nd
Teaching language	Spanish			
Department				
Coordinator	Ortiz Torres, Luis			
Lecturers	Ortiz Torres, Luis			
E-mail	lortiz@uvigo.es			
Web	http://http://dasometriaweb.blogspot.com.es/			
General description	(*)Se analizarán los fundamentos básicos de los aprovechamientos forestales madereros para aprender su planificación básica. Asimismo se estudiarán los principales sistemas de aprovechamiento usados en Galicia así como sus rendimientos, costes y normas de seguridad. En la enseñanza de la materia, tres aspectos son fundamentales a desarrollar, según nuestro punto de vista, en la enseñanza de la ciencia forestal: intuición, rigor y creación. La intuición ubica al alumno en el tipo de problemas que se quiere atacar (a través de ejemplos), crea una perspectiva (a menudo a través de la propia historia del problema) y en definitiva genera un interés. El segundo nivel formaliza todas esas intuiciones y las despoja de lo accesorio hasta desentrañar lo esencial. El rigor necesita de la abstracción y es fundamental en la transmisión de conocimientos técnicos. La creación permite construir soluciones propias, prácticas, cuanto antes tenga un contacto forestal y más aprenda de ello, más motivado va a continuar el estudio de la asignatura.			

Skills	
Code	
B1	Ability to understand the biological, chemical, physical, mathematical and representation systems necessary for the development of professional activity, as well as to identify the different biotic and physical elements of the forest environment and renewable natural resources susceptible to protection, conservation and exploitations in the forest area.
B6	Ability to measure, inventory and evaluate forest resources, apply and develop silvicultural techniques and management of all types of forest systems, parks and recreational areas, as well as techniques for harvesting timber and non-timber forest products
C23	Ability to know, understand and use the principles of forest exploitation and supply of raw materials in the forest industry.
D4	Sustainability and environmental commitment
D5	Capacity for information management, analysis and synthesis
D6	Organization and planning capacity
D8	Ability to solve problems, critical reasoning and decision making
D10	Autonomous Learning

Learning outcomes	
Expected results from this subject	Training and Learning Results

2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances. 4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses. 5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial. 6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project. 7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering. 9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality. 11R. 2018 Understanding of the techniques and methods of analysis, project and applicable investigation and his limitations within the scope of the his speciality. 12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality. 13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality. 14R. 2018 Capacity to apply norms of engineering in the his speciality. 15R. 2018 Knowledge of the social implications, of health and security, environmental, economic and @industrial of the practice in engineering. 17R. 2018 Capacity to collect and interpret data and handle complex concepts inside the his speciality, to issue judgements that involve a reflection on ethical and social questions 20R. 2018 Capacity to work effectively in national and international contexts, individually and in team, and cooperate with the engineers and people of other disciplines.	B1 B6	C23	D4 D5 D6 D8 D10

Contents	
Topic	
General information on forestry and its market in the world	Definition and types of use The Forest Products Market The demanada and the companies The supply of forest products in the world
Marketing of wood	Main procedures for the sale and sale of wood Auction and drafting
Techniques, means and procedures of logging	Wood felling and processing Manual tools The chainsaw and other portable machines Automotive Fodder and Processing Machinery Waste treatment machinery (chippers and balers) Pull out of the wood (skider and autoloader) Adapted agricultural tractor Unblocking cables, helicopter and other methods Transport of wood (river, rail, sea and land) Parks for wood storage
Timber harvesting planning	Factors influencing planning Main systems of exploitation Organization of the uses Control systems in the harvests
Prevention of occupational hazards in forestry	The risk assessment Loss in the forestry sector
The environmental impact of harvesting	Main impacts of forestry activity Methodological guide
The use of bark	Cork Ecology The cork market
The use of resins	The use of resins The resin market

Planning			
	Class hours	Hours outside the classroom	Total hours
Lecturing	26	63	89
Problem solving	3	11	14

Case studies	6	6	12
Studies excursion	16	18	34
Problem and/or exercise solving	1	0	1

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

Methodologies

	Description
Lecturing	Presentation by the teacher of the contents on the subject under study, theoretical and / or guidelines for a job, exercise or project to be developed by the student.
Problem solving	Activity which formulated problem and / or exercises related to the course. The student should develop appropriate solutions or right through the exercise routines, application of formulas or algorithms, application processing procedures available information and interpretation of the results. It is often used to complement the lecture.
Case studies	Analysis of an event, issue or actual event in order to know, interpret, solve, generate hypotheses, comparing data, reflect, complete knowledge, diagnose and training in alternative dispute resolution procedures.
Studies excursion	Activities application of knowledge to specific situations and basic skills acquisition and related procedural matter under study. They thrive in nonacademic outdoor spaces. Among them we can cite practical field visits to events, research centers, companies, institutions ... academic-professional interest to the student.

Personalized assistance

Methodologies	Description
Problem solving	It is a question of performing a practical work corresponding to a gap in the topics included in the agenda and publicly presenting said work.
Studies excursion	It is a series of practical visits to facilities and mountains

Assessment

	Description	Qualification	Training and Learning Results
Lecturing	(*)Asistencia e desempeño dedicado ás clases da materia. Se *evaluan as competencias básicas *CB1 e *CB2, as xerais *CG8, *CG18, *CG23, *CG38, *CG39, *CG40 e *CG41, a específicas CE23 (CE 23.1 a 23.10) e as transversais *CBI1, *CBI2, *CBI4, *CBI5, *CBI6, *CBI7, *CBP4, *CBS1, *CBS7.	10	
Case studies	(*)Resolución dun suposto práctico de planificación que o alumno deberá realizar e entregar Se *evaluan as competencias básicas *CB1 e *CB2, as xerais *CG8, *CG18, *CG23, *CG38, *CG39, *CG40 e *CG41, a específicas CE23 (CE 23.1 a 23.10) e as transversais *CBI1, *CBI2, *CBI4, *CBI5, *CBI6, *CBI7, *CBP4, *CBS1, *CBS7.	20	D5 D6
Studies excursion	(*)Asistencia ás saídas e práctica de campo organizadas.	10	
Problem and/or exercise solving	(*)Resposta a preguntas relacionadas co temario Se *evaluan as competencias básicas *CB1 e *CB2, as xerais *CG8, *CG18, *CG23, *CG38, *CG39, *CG40 e *CG41, a específicas CE23 (CE 23.1 a 23.10) e as transversais *CBI1, *CBI2, *CBI4, *CBI5, *CBI6, *CBI7, *CBP4, *CBS1, *CBS7.	60	D6

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

TOLOSANA, E. et al, **El aprovechamiento maderero**, Ediciones Mundi-Prensa,

DALLA-PRIA, E et al, **Manuel d´exploitation forestière. Tome I.et II**, CTBA y ARMEF,

MONTOYA, J. M., **Los alcornocales**, M.A.P.A. Madrid,

ZAMORANO, J. L, **Resinar de forma rentable**, I.N.I.A. Madrid,

ACEMM, **Manual de prevención de riesgos laborales en el sector forestal**, Fundación para la prevención de riesgos laborales. Gobierno de Cantabria,

AAEF, **Manual de prevención de riesgos laborales en el sector forestal**, Junta de Andalucía,

Recommendations

Subjects that continue the syllabus

Forestry machinery/P03G370V01502

Subjects that are recommended to be taken simultaneously

Dasometry/P03G370V01602

Subjects that it is recommended to have taken before

Forestry/P03G370V01401

Contingency plan

Description

=== EXCEPTIONAL PLANNING ===
Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University of Vigo establishes an extraordinary planning that will be activated when the administrations and the institution itself determine it, considering safety, health and responsibility criteria both in distance and blended learning. These already planned measures guarantee, at the required time, the development of teaching in a more agile and effective way, as it is known in advance (or well in advance) by the students and teachers through the standardized tool.

=== ADAPTATION OF THE METHODOLOGIES ===
* Teaching on line
Use of institutional on-line teaching platform Campus Remoto in a synchronous way for the theoretical classes including basics, foundations, as well as general guidelines for resolution of problems and practical cases. Specific didactic materials adapted for on line teaching will be prepared e.g. Video or presentations, graphic resources, software, etc. All the resources will be available through FAITIC platform.
* Mechanism face-to-face of attention to the students (tutorials)
Personalized attention. Communication by email or another on-line tool. Tutorials via Campus Remoto platform.
=== ADAPTATION OF The EVALUATION ===
On-line tests and tasks via Campus Remoto and Faitic. The weight of the tests will be maintained as they are described in the main guide.

IDENTIFYING DATA				
Dasometry				
Subject	Dasometry			
Code	P03G370V01602			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	2nd
Teaching language	Spanish Galician			
Department				
Coordinator				
Lecturers				
E-mail				
Web				
General description	The *asignatura of *Dasometría consists of two big blocks: *Dasometría and Inventory. The first a forest basic science part of the *Dasonomía and very related with the *Selvicultura that centres in the study of the volumes and growths of the forest masses. The second is a group of technicians that allow to the technician in his professional work apply the sciences (*Dasometría) for *recopilar data on the masses and possible future evolution. In the education of the matter, three appearances are fundamental to develop, according to our point of view, in the education of the forest science: intuition, rigour and creation. The intuition situates to the student in the type of problems that wants to attack (through examples), creates a perspective (often through the own history of the problem) and in definite generates an interest. The second level formalises all these intuitions and undresses them of the accessory until *desentrañar the essential. The rigour needs of the abstraction and is fundamental in the transmission of technical knowledges. The creation allows to build own solutions, practical, what before have a forest contact and more learn of this, more motivated goes to continue the study of the *asignatura.			

Skills	
Code	
B6	Ability to measure, inventory and evaluate forest resources, apply and develop silvicultural techniques and management of all types of forest systems, parks and recreational areas, as well as techniques for harvesting timber and non-timber forest products
C24	Ability to know, understand and use the principles of: dasometry and forest inventory, forest management.
D8	Ability to solve problems, critical reasoning and decision making

Learning outcomes	
Expected results from this subject	Training and Learning Results

2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances. 3R. 2018 Be conscious of the multidisciplinary context of the engineering. 4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses. 5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial. 6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project. 7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering. 8R. 2018 Capacity to realize bibliographic researches, consult and use databases and other sources of information with discretion, to realize @simulación and analysis with the objective to realize investigations on technical subjects of the his speciality. 9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality. 11R. 2018 Understanding of the techniques and methods of analysis, project and applicable investigation and his limitations within the scope of the his speciality. 12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality. 13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality. 22R. 2018 Capacity to be to the day of the scientific and technological news.	B6	C24	D8

Contents	
Topic	
0. Introduction to the Dasometry	1. Why measure? 2. Why measure trees and forest masses? 3. Dasometry and affine sciences. 4. Units of measure. 5. Normalisation of symbols used in dasometry. 6. Significant figures. 7. Precision, bias and accuracy of the data. 8. Errors. 9. Weight or volume? 10. Components of the tree. 11. The form of the tree. 12. Measurement by trip of fluid. 13. Differences between quantity, value and price.
1. Measurement of Trees: Diameters	1.1. Important terms. 1.2. Basic dasometric parameters. 1.3. Measurement of diameters of the trees. 1.4. Measurement of the thickness of bark, diametral growth and age of the tree. 1.5. Marked and designation of trees. 1.6. Measurement of distances.
2. Measurement of Trees: Heights	2.1. Measurement of slopes. 2.2. Measurement of heights. 2.3. Recommendations for the measurement of heights. 2.4. Relascopio Of Bitterlich. 2.5. Other devices of the inventory. 2.6. Price devices dasometrycs.
3. Cubiculation By trozas.	3.1. Cubiculation Of trees. 3.2. Types dendrométricos. 3.3. Procedures for cubages of trees. 3.4. Formulas for cubages by trozas. 3.5. Rules madereras.
4. Cubages Complete trunks.	4.1. Graphic method. 4.2. Function of profile. 4.3. Formula of Pressler or of the point guideline. 4.4. Cubages Of trees in foot. Pressler-Bitterlich. 4.5. Parameters related with form: coefficients of form and mórphics.. 4.6. Height reduced.

5. Cubiculation Of masses.	5.1. Stereometry. 5.2. Function of distribution diametric. 5.3. Half parameters of a mass. 5.4. Cubification Of forest masses. 5.5. Prices or tables of cubiculation. 5.6. Tables of mass. 5.7. Trees Type or modular values.
6. Wooden measurement stacked.	6.1. Quantification of the wood stacked. Definition of stereo. 6.2. Other units of apparent volume. 6.3. Coefficient of stacked. 6.4. Methods to calculate the coefficient of stacked.
7. Epidometry	7.1. Definition of epidometry 7.2. Diametral growth and age of the tree. 7.3. Analysis epidometric of trunks. 7.4. Definitions of growth. 7.5. Relation between growths. 7.6. Methods of obtaining of growths. 7.7. Definitions of growth of a mass.
8. Forest inventory	8.1. Definition of inventory. 8.2. Parts of the inventory. 8.3. Types of inventory. 8.4. Planning of the inventory. 8.5. Design of the inventory. 8.6. Units of sampling. 8.7. Methods of sampling. 8.8. Number, size and form of the plots of sampling. 8.9. Methods of realisation of the inventory. 8.10. Determination of the number of sample for a determinate error. 8.10. Estadillos Of taking of data in field.

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	26	52	78
Problem solving	4	10	14
Case studies	6	12	18
Studies excursion	14	21	35
Problem and/or exercise solving	1	0	1
Report of practices, practicum and external practices	1	0	1
Self-assessment	0	3	3

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

Methodologies

	Description
Lecturing	Exhibition by part of the professor of the contents on the matter supporting some presentations of images, diagrams and videos that the student can see/download in the web indicated by the professor
Problem solving	I complement of the master lessons in which they expose practical exercises that the student has to develop applying the algorithms seen in the subject.
Case studies	Study of real cases with examples of different Inventories realised analysing his memory and methodology. With special attention to the solutions of planning employed and the computer applications.
Studies excursion	They will realise three practical exits for the execution of a forest inventory previously designed in the classroom like practical case. The students will have of the material of necessary inventory for the take down of plots and his processed back in cabinet. It will have to present a memory of the inventory realised.

Personalized assistance

Methodologies	Description
Problem solving	
Studies excursion	

Assessment

	Description	Qualification	Training and Learning Results
Lecturing	Assistance and participation in the theoretical classes of the *asignatura (7.5 points). Delivery of exercises realised during the classes or of realisation out of the classroom (10 points) .	20	C24
Problem and/or exercise solving	Realisation of an examination in which they will evaluate the theoretical and practical concepts of the *asignatura, by means of questions type test, and of theoretical development, as well as practical exercises.	60	C24
Report of practices, practicum and external practices	COMPULSORY assistance to the practical classes of the *asignatura, that realise usually in field. In exceptional cases, in which the assistance continued of the student was not possible, will realise a practical examination in field. COMPULSORY assistance to trip of practices of the *asignatura.	20	C24
Self-assessment	(*)Realización de exercicios exemplo e casos prácticos como apoio ao estudante	0	

Other comments on the Evaluation

The student has to approve the practical part and the theoretical part separately. The assistance to the practices and to the trip of practices is of compulsory character to approve the *asignatura.

Sources of information

Basic Bibliography

Complementary Bibliography

DIEGUEZ, U. et al., **Dendrometría**, Mundi Prensa Fundación Conde del Valle de Salazar,

MARTÍNEZ CHAMORRO, et al., **Manual para a cubicación, taxación e venda de madeira en pe e biomasa forestal**, Universidade de Vigo,

MADRIGAL, A.; ÁLVAREZ, J.G.; RODRÍGUEZ, R.; ROJO, A., **Tablas de producción para los montes españoles**, Fundación Conde del Valle de Salazar,

DIEGUEZ, U. et al., **Herramientas Selvícolas para la Gestión Forestal Sostenible en Galicia**, Xunta de Galicia,

PRIETO RODRÍGUEZ, A.; LÓPEZ QUERO, M., **Dasometría. Versión española de Dendrométrie de L´ecole national du génie rural des aux et des forêts**, Editorial Paraninfo,

ACEMM, **Manual de prevención de riesgos laborales en el sector forestal**, Fundación para la prevención de riesgos laborales. Gobierno de Cantabria,

Recommendations

Subjects that continue the syllabus

Forest management/P03G370V01605
Physical planning and land management/P03G370V01701

Subjects that are recommended to be taken simultaneously

Projects/P03G370V01503

Subjects that it is recommended to have taken before

Mathematics: Statistics/P03G370V01301
Forestry/P03G370V01401
Use of forests/P03G370V01601

Contingency plan

Description

=== EXCEPTIONAL PLANNING ===
Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University of Vigo establishes an extraordinary planning that will be activated when the administrations and the institution itself determine it, considering safety, health and responsibility criteria both in distance and blended learning. These already planned measures guarantee, at the required time, the development of teaching in a more agile and effective way, as it is known in advance (or well in advance) by the students and teachers through the standardized tool.

=== ADAPTATION OF THE METHODOLOGIES ===
* Teaching methodologies maintained

* Teaching methodologies modified

* Non-attendance mechanisms for student attention (tutoring)

* Modifications (if applicable) of the contents

* Additional bibliography to facilitate self-learning

* Other modifications

=== ADAPTATION OF THE TESTS ===
* Tests already carried out
Test XX: [Previous Weight 00%] [Proposed Weight 00%]
...

* Pending tests that are maintained
Test XX: [Previous Weight 00%] [Proposed Weight 00%]
...

* Tests that are modified
[Previous test] => [New test]

* New tests

* Additional Information

IDENTIFYING DATA				
Repopulation				
Subject	Repopulation			
Code	P03G370V01603			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	2nd
Teaching language	Spanish Galician			
Department				
Coordinator	González Prieto, Óscar			
Lecturers	González Prieto, Óscar			
E-mail	oscargprieto@uvigo.es			
Web				
General description	(*)Los objetivos generales de la asignatura son: a) Conocer las bases, objeto y fundamentos de las Repoblaciones Forestales b) Conocer las caractaristicas, métodos y medios necesarios para llevar a cabo las distintas opreaciones relacionadas con las repoblaciones forestales c) Conocer los principios generales de la obtención de semilla forestal y producción de planta forestal en vivero.			

Skills	
Code	
B1	Ability to understand the biological, chemical, physical, mathematical and representation systems necessary for the development of professional activity, as well as to identify the different biotic and physical elements of the forest environment and renewable natural resources susceptible to protection, conservation and exploitations in the forest area.
B2	Ability to analyze the ecological structure and function of forest systems and resources, including landscapes.
C20	Ability to know, understand and use the principles of forestry machinery and mechanization.
C21	Ability to know, understand and use the principles of: reforestation. Gardening and nurseries. Forest improvement
D5	Capacity for information management, analysis and synthesis
D8	Ability to solve problems, critical reasoning and decision making
D10	Autonomous Learning

Learning outcomes	
Expected results from this subject	Training and Learning Results

2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances.	B1 B2	C20 C21	D5 D8 D10

3R. 2018 Be conscious of the multidisciplinary context of the engineering.
4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses.
5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial.
6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project.
7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering.
8R. 2018 Capacity to realize bibliographic researches, consult and use databases and other sources of information with discretion, to realize @simulación and analysis with the objective to realize investigations on technical subjects of the his speciality.
9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality.
11R. 2018 Understanding of the techniques and methods of analysis, project and applicable investigation and his limitations within the scope of the his speciality.
12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality.
13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality.
14R. 2018 Capacity to apply norms of engineering in the his speciality.
15R. 2018 Knowledge of the social implications, of health and security, environmental, economic and @industrial of the practice in engineering.
16R. 2018 general Ideas on economic questions, organisational and of management (how management of projects, management of risks and change) in the industrial and entrepreneurial context.
19R. 2018 Capacity to communicate of effective way information, ideas, problems and solutions in the field of the engineering and with the society in general.
20R. 2018 Capacity to work effectively in national and international contexts, individually and in team, and cooperate with the engineers and people of other disciplines.

Contents

Topic

Module I *Planificacion and *ejecucion of *repoblaciones forest	Subject 1. Concept and election of species Lesson 1.1. Concept of *repoblacion forest and comment Lesson 1.2. Antecedents and need of the *repoblacion forest Lesson 1.3. Aims of the *repoblacion forest Lesson 1.4. Election of species Fear 2. Methods of *repoblacion Lesson 2.1. Types of methods Lesson 2.2. Selection of the method Fear 3. Treatment of the pre-existing vegetation Lesson 3.1. Justification and objective Lesson 3.2. Classification of the procedures of *desbroce Lesson 3.3. Description of the procedures of *desbroce Subject 4. Preparation of the am used to Lesson 4.1. Justification and objective Lesson 4.2. Classification of the procedures of preparation of the am used to Lesson 4.3. Description of the procedures of preparation of the am used to Lesson 4.4. Hydrological appearances of the *desbroces and of the preparation of the floor Fear 5. Introduction of the new species Lesson 5.1. Density of introduction Lesson 5.2. You seed Lesson 5.3. Plantations Fear 6. Back cares of the *repoblaciones and complementary works Lesson 6.1. Back cares of the *repoblaciones Lesson 6.2. Complementary works Subject 7. Environmental impact of the *repoblaciones forest Lesson 7.1. Introduction and normative Lesson 7.2. Considerations on the environmental impact of the *R. Forest Lesson 7.3. Factors affected Lesson 7.4. Evaluation of impacts Lesson 7.5. Methodological conclusion
Module II Seeds	Subject 8. Generalities on forest seeds Lesson 8.1. *Recolección Lesson 8.2. Extraction and cleaning Lesson 8.3. Storage Lesson 8.4. Treatments of conservation Lesson 8.5. Analysis Lesson 8.6. Treatments of germination Lesson 8.7. It seeds
Module III Nurseries	Subject 9. Generalities on forest nurseries Lesson 9.1. Definition and classes Lesson 9.2. It waters Lesson 9.3. I am used to Lesson 9.4. Location, form and size Lesson 9.5. Crop of plant to nude root Lesson 9.6. Crop of plant in container Lesson 9.7. *Estaquillado Lesson 9.8. Quality of the forest plant Lesson 9.9. *Micorrizacion
Module IV Security, Hygiene and Prevention of labour Risks in the *repoblaciones forest	Element 10 *PRL in *Repoblaciones Forest *Leccion 10.1 Risks related with the spaces of work *Leccion 10.2 manual Tools *Leccion 10.3 portable Machines *Leccion 10.4 forest Machinery *Leccion 10.5 Manipulation of phytosanitary products and *fertilizantes

Planning			
	Class hours	Hours outside the classroom	Total hours
Lecturing	15	48	63

Problem solving	6	14	20
Studies excursion	8	8	16
Project based learning	4	13	17
Case studies	11	15	26
Objective questions exam	1.5	0	1.5
Problem and/or exercise solving	1.5	0	1.5
Laboratory practice	5	0	5

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

Methodologies	
	Description
Lecturing	The lesson *magistral is the common form of development of the function *expositiva, in that the professor develops a series of concepts related with the contents of the Subject, and the student adopts a paper *receptivo of said information. The employment of audiovisual means (slides, transparencies, videos, cannon of video, etc.) goes to be constant in these classes since the retention of information is very upper when they combine oral and visual stimuli. The lesson *magistral serves to develop conceptually a subject, give global versions, develop a methodology of work. Etc. In function of the advance of the course, the content of each didactic unit given will go facilitating previously and by writing, well as you aim or like bibliography, what makes possible to the student that assist to the classes with the previous reading of the subject. On the other hand, if the student knows that what gives will be able to find it in a book to the hour to study it, his attitude in class will be headed to to comprise the explanation, having to take only notice *marginales of what expands . In the case of the present subject, the employment of audiovisual means like digital presentations, multimedia, transparencies, *retroproyección, etc. has to speed up the exhibition of subjects with a marked descriptive character, or in which they require drawings and diagrams of complicated execution. The classes of discussion directed, will make at least one along the course and consists in the exhibition of a subject, that has to gather characteristics of real problem, wealth in contradictions or reasons of controversy, has to be of interest for the students, that have to know the activity with *antelación sufficient and be the quite qualified to issue opinions about the same. The technician orients to the *superación of the memorisation *acrítica, the promotion of the participation in the group and the *verbalización of ideas like half that favours his assimilation. Besides, it ascertains in an important part of the students a difficulty of expression and editorial, that can contribute to win by means of this didactic resource. The paper of the professor like driver or *moderador of the discussion is fundamental allowing all type of opinions on the subject. Besides, and of complementary form to the lesson *magistral, after the exhibition of controversial subjects or of special interest for the students, results interesting the organisation of debates of extension reduced, turns of questions, etc. Such activity, of realisation simpler that the previous, can consider more like a resource of preparation and control inside the lesson *magistral, that like a technician of extraneous nature to the same. Other tools that contribute to reinforce the included contents in the lessons *magistrales are. - Study of cases/analysis of situations /discussion directed: Formulation, analysis, resolution and debate of a problem or exercise related with the thematic of the subject. - Resolution of problems and/or exercises of autonomous form: Formulation, analysis, resolution and debate of a problem or exercise related with the thematic of the subject, by part of the students. - Presentations/exhibitions: oral Exhibition by part of the students of a concrete subject or of a work (generally previous presentation written). - Multimedia sessions: Employment of material *videográfico / on-line on appearances of the subject - Gone out of practical/study of field: Realisation of visits-exits to the field for the observation and study of appearances previously studied/analysed
Problem solving	Formulation, analysis, resolution and debate of a problem or exercise related with the thematic of the subject, by part of the students. Will carry out exercises and problems on subjects as, static study of forest masses, dynamic study of the forest masses, etc.

Studies excursion	The practice of the technicians, learnt theoretically, has to carry out in contact with the professional practice that only can obtain by means of the real practice of the technicians (or his direct observation) there where these carry out (industry, forest masses, etc.). Have to make the maximum number of practices of field or trips of practices, without which the theoretical educations result insufficient to achieve the educational aims. The practices of field pretend therefore achieve fix the concepts of the subject, give to the students the opportunity to put in contact with the professional world and boost the relations between students and professor student out of the centre. The realisation of trips of practices have felt when really they contribute new knowledges that they are impossible to purchase in the own School. The exit of field will not make in the case of teaching no face-to-face or *semi-face-to-face. In this case of *substituirá by the practical observation of audiovisual material of works and field of *repoblaciones forest.
Project based learning	- *Organizacvión Of seminars *ou specific conferences - Presentations/exhibitions: oral Exhibition by part of the students of a concrete subject or of a work (generally previous presentation written). - Multimedia sessions: Employment of material *videográfico / on-line on appearances of the subject - Days of study of appearances previously studied/analysed in the exits of field
Case studies	- Study of cases/analysis of situations or discussion directed: Formulation, analysis, resolution and debate of a problem or exercise related with the thematic of the subject.

Personalized assistance

Methodologies	Description
Case studies	The *tutorías will make preferably by telematic means (email, remotecampus, forums of doubts in *FaiTIC). For that student or student that request it will be able to make , inthe measure of the possible, *presencialmente. They will indicate to beginning of course the concrete forms ofcommunication as well as the schedules.
Problem solving	The *tutorías will make preferably by telematic means (email, remotecampus, forums of doubts in *FaiTIC). For that student or student that request it will be able to make , inthe measure of the possible, *presencialmente. They will indicate to beginning of course the concrete forms ofcommunication as well as the schedules.
Studies excursion	The *tutorías will make preferably by telematic means (email, remotecampus, forums of doubts in *FaiTIC). For that student or student that request it will be able to make , inthe measure of the possible, *presencialmente. They will indicate to beginning of course the concrete forms ofcommunication as well as the schedules.

Assessment

	Description	Qualification	Training and Learning Results
Lecturing	Proof written on the teaching given in sessions *magistrales	0	
Project based learning	Proof on learning based in projects	0	
Case studies	Proof written and/or oral on the similar cases to the resolved in class	30	C21
Objective questions exam	Proof written on the teaching given in sessions *magistrales	30	C21
Problem and/or exercise solving	Proof written on the teaching given in sessions *magistrales	40	C21

Other comments on the Evaluation

To approve the matter have to surpass the common examinations and make satisfactorily the works that *eventualmente commission . The presence in practise and trips is compulsory. They will not save classifications of the theoretical notes, further of the announcements regulated of the academic year.

Calendar of examinations:

official Dates collected in informative documentation of the School.&*nbsp;http://forestales.uvigo.es/gl/docencia/exames/

Sources of information

Basic Bibliography

Complementary Bibliography

R. Serrada, **SERRADA, R. 2000. Apuntes de Repoblaciones Forestales.**, FUCOVASA. Madrid.,

Recommendations

Subjects that are recommended to be taken simultaneously

Botany/P03G370V01303
Forestry Ecology/P03G370V01402

Subjects that it is recommended to have taken before

Biology: Plant Biology/P03G370V01201

Contingency plan

Description

=== EXCEPTIONAL MEASURES SCHEDULED ===
In front of the uncertain and unpredictable evolution of the sanitary alert caused by the *COVID-19, the University of Vigo establishes an extraordinary planning that will activate in the moment in that the administrations and the own institution determine it attending to criteria of security, health and responsibility, and guaranteeing the teaching in a no face-to-face stage or partially face-to-face. These already scheduled measures guarantee, in the moment that was prescriptive, the development of the teaching of a more agile and effective way when being known in advance (or with a wide *antelación) by the students and the *profesorado through the tool normalised and institutionalised of the educational guides.

* Educational methodologies that keep
introductory Activities
Lesson *magistral
Resolution of problems
Work *tutelado
* educational Methodologies that modify
The exit of practices scheduled will not make in the case of teaching no face-to-face or in the case that it do not allow with teaching *semi-face-to-face. *substituirá By practical observation of audiovisual material of processes of manufacture of industries of the wood (videos and digital information)
* Mechanism no face-to-face of attention to the students (*tutorías)
virtual Dispatch, email and habilitation of forums in the platform *FaiTIC
* Modifications (if they proceed) of the contents to give
The exit of practices scheduled will not make in the case of teaching no face-to-face or in the case that it do not allow with teaching *semi-face-to-face. *substituirá By practical observation of audiovisual material of processes of manufacture of industries of the wood (videos and digital information)
* additional Bibliography to facilitate the car-learning
is not necessary, since they facilitate it to him materials in the platform of *teledocencia, many of them of own preparation by part of the professors, to be able to make a follow-up of the matter
* Other modifications
is not necessary
=== ADAPTATION OF THE EVALUATION ===
* Test already made
keeps the weight when being adapted all the proofs to any circumstance
* Test slopes that keep
keeps the weight when being adapted all the proofs to any circumstance
* Test that they modify
is not necessary
* New proofs
is not necessary
* additional Information
does not require

IDENTIFYING DATA				
Forestry hydrology				
Subject	Forestry hydrology			
Code	P03G370V01604			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	2nd
Teaching language				
Department				
Coordinator	Álvarez Bermúdez, Xana			
Lecturers	Álvarez Bermúdez, Xana			
E-mail	xana.alvarez.bermudez@gmail.com			
Web	http://http://www.forestales.uvigo.es/			
General description	Description of the elements that influence in the hydrological cycle. Characterisation of hydrographic basins and quantification of the erosion. Technicians of control and management of the hydrographic basins			

Skills	
Code	
B3	Knowledge of degradation processes that affect forest systems and resources (pollution, pests and diseases, fires, etc.) and capacity for the use of forest environment protection techniques, forest hydrological restoration and biodiversity conservation .
C9	Ability to know, understand and use the principles of: forestry hydraulics; hydrology and hydrological-forest restoration.
D4	Sustainability and environmental commitment

Learning outcomes			
Expected results from this subject	Training and Learning Results		
2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances. 3R. 2018 Be conscious of the multidisciplinary context of the engineering. 5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial. 6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project. 7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering. 8R. 2018 Capacity to realize bibliographic researches, consult and use databases and other sources of information with discretion, to realize @simulación and analysis with the objective to realize investigations on technical subjects of the his speciality. 12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality. 14R. 2018 Capacity to apply norms of engineering in the his speciality. 15R. 2018 Knowledge of the social implications, of health and security, environmental, economic and @industrial of the practice in engineering. 16R. 2018 general Ideas on economic questions, organisational and of management (how management of projects, management of risks and change) in the industrial and entrepreneurial context. 17R. 2018 Capacity to collect and interpret data and handle complex concepts inside the his speciality, to issue judgements that involve a reflection on ethical and social questions 18R. 2018 Capacity to manage activities or technical projects or complex professionals of the his speciality, assuming the responsibility of the takes of decisions.	B3	C9	D4

Contents
Topic

Subject1 Introduction and generalities	Hydrological cycle. The hydrological basin. Physical parameters of the basin. Soil and climate. Actions of the forest on the water regulation. Hydrological subsystems. Hydrological models. legal framework .
Subject 2 Precipitation	Training and types. Measured atmospheric humidity. Terminal Speed drops rain. Size drops and kinetical energy. Measure and distribution of the precipitation. Methods of work with rainfall data. Half precipitation on an area
Subject 3 Evaporation	Solar radiation Profiles of wind in vegetation Evaporation and evapotranspiration Empirical methods Interception and transpiration in forests
Subject 4 Infiltration	Measure of humidity and potential water in the floor influential Factors instantaneous and accumulated Infiltration Flow in saturated means. Law of Darcy Models of infiltration Measured of the hydraulic conductivity
Subject 5 Runoff	Generation and classification of the flow of runoff Coefficient of runoff. Number Of Curve Methods of Green-Ampt Methods of estimate of runoff monthly Water balance and Thornthwaite
Subject 6 Hydrographs	Separation of basic flow Unitary and synthetic hydrographs Maximum Discharge of runoff
Subject 7 Surface water and groundwater	Aquifers hydrogeological variables Equations of subterranean flow
Subject 8 hydrological Measurements	Discharge Measurements of speed of flow Measurements with sensors of pressure Types of control of relation level and discharge
Subject 9 Driving of avenues of water	Introduction Traffic of aggregated systems hydrological Traffic in rivers Traffic distributed of increasing cinematic Wave
Subject 10 hydrological Statistics	Concepts. Analysis of frequency. Work of distribution. Period of return. Theory of adjust statistical. Analysis of frequency for extreme values .
Subject 11 hydrological Restoration forest	Action of the forest on water regulation. Distribution of the the precipitation in forest masses. Intercept. Translocation. Trunk runoff Hydrological techniques reforestation
Subject 12: Water erosion	Types of erosion. Parametric models Models of analytical solution . Stabilization and rehabilitation techniquesn of areas with risk of erosion
Subject 13: Restoration of banks and rivers	Main pressures and impacts of the Spanish rivers Environmental Assessment of the rivers Features and banks Performances for the improvement and restoration of rivers Development projects Ecological restoration of rivers and banks

Subject 14: transversal Works in the course	Dams of consolidation Dams of retention Planning and technical criteria of execution Act longitudinal in margines rivers Design of breakwaters Pavers background Deflectors
Subject 15: practical sessions	Hydrological modeling with HEC-HMS. Configuration of projects in HEC-HMS and its capabilities for basin modeling through the introduction of the different components of the basin, as well as the meteorological model and control specifications. Direct runoff hydrograph calculation produced by a precipitation event and analysis of results.

Planning			
	Class hours	Hours outside the classroom	Total hours
Practices through ICT	10	10	20
Autonomous problem solving	30	30	60
Studies excursion	3	3	6
Lecturing	30	30	60
Problem and/or exercise solving	3	0	3
Problem and/or exercise solving	1	0	1
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Methodologies	
	Description
Practices through ICT	I handle of software draw computer-aided for treatment of watershed. By means of this methodology develop the competitions A19 and A62
Autonomous problem solving	They will explain and/or they will resolve problems in group 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 his qualification. By means of this methodology develop the competitions A19 and A62
Studies excursion	It will realise visit to a place of interest hydrological to observe the hydrological conditions of the same and infrastructures and techniques of restoration employed. By means of this methodology develop the competitions A19 and A62
Lecturing	Classes in the classroom to the groups, where explain the corresponding contents to each subject. By means of this methodology develop the competitions A19 and A62

Personalized assistance	
Methodologies	**Description**
Autonomous problem solving	Some exercises will be solved in class and others the student will have to solve them independently

Assessment			
	Description	Qualification	Training and Learning Results
Problem and/or exercise solving	Practical supposition for his resolution. By means of this methodology evaluate the competitions A19 and A62	30	C9
Problem and/or exercise solving	Proof with questions type test and of short answer, where the student will have to show the knowledge purchased. By means of this methodology evaluate the competitions A19 and A62	70	C9

Other comments on the Evaluation

Sources of information
Basic Bibliography
Complementary Bibliography

Recommendations

Contingency plan

Description

=== EXCEPTIONAL MEASURES SCHEDULED ===
In front of the uncertain and unpredictable evolution of the sanitary alert caused by the *COVID-19, the University of Vigo establishes an extraordinary planning that will activate in the moment in that the administrations and the own institution determine it attending to criteria of security, health and responsibility, and guaranteeing the teaching in a no face-to-face stage or partially face-to-face. These already scheduled measures guarantee, in the moment that was prescriptive, the development of the teaching of a more agile and effective way when being known in advance (or with a wide *antelación) by the students and the *profesorado through the tool normalised and institutionalised of the educational guides.

=== ADAPTATION OF THE METHODOLOGIES ===
* educational Methodologies that keep : all

* educational Methodologies that modify : it will changue from the face-to-face modality to the on-line modality through the virtual campus of the university of Vigo.

* Mechanism no face-to-face of attention to the students (*tutorías): through the email and of the virtual dispatch of the professor

* Modifications (if they proceed) of the contents to give: without modification

* additional Bibliography to facilitate the car-learning: without modification

* Other modifications

=== ADAPTATION OF THE EVALUATION ===
* Test already made: they keep
Proof XX: [previous Weight 00%] [Weight Proposed 00%]
...

* Pending proofs that keep : they keep
Proof XX: [previous Weight 00%] [Weight Proposed 00%]
...

* Proofs that modify : without modification. They will become on-line examinations if the circumstances do not allow face-to-face examinations
[previous Proof] =&*gt; [new Proof]

* New test

* additional Information

IDENTIFYING DATA				
Forest management				
Subject	Forest management			
Code	P03G370V01605			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	2nd
Teaching language	Spanish Galician			
Department				
Coordinator				
Lecturers				
E-mail				
Web				
General description	During it study of #Ordination of Hills will #analyze the different methods stop the organisation and management of the *aproveitamento of the forest natural resources. The education will base in the *repaso of the European forest history and of the parallel evolution of the methods of #ordination. The presentation of problems will allow to enter the distinct solutions and the learning of the same by part of the student.			

Skills	
Code	
B6	Ability to measure, inventory and evaluate forest resources, apply and develop silvicultural techniques and management of all types of forest systems, parks and recreational areas, as well as techniques for harvesting timber and non-timber forest products
B10	Ability to apply the techniques of forest management and land planning, as well as the criteria and indicators of sustainable forest management within the framework of forest certification procedures.
B13	Ability to design, direct, elaborate, implement and interpret projects and plans, as well as to write technical reports, recognition reports, assessments, appraisals and appraisals.
C24	Ability to know, understand and use the principles of: dasometry and forest inventory, forest management.
C25	Ability to know, understand and use the principles of: forest legislation and certification; sociology and forestry policy.
D4	Sustainability and environmental commitment
D6	Organization and planning capacity
D8	Ability to solve problems, critical reasoning and decision making

Learning outcomes	
Expected results from this subject	Training and Learning Results

2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances.	B6 B10 B13	C24 C25	D4 D6 D8

3R. 2018 Be conscious of the multidisciplinary context of the engineering.
4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses.
5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial.
6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project.
7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering.
8R. 2018 Capacity to realize bibliographic researches, consult and use databases and other sources of information with discretion, to realize @simulación and analysis with the objective to realize investigations on technical subjects of the his speciality.
9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality.
11R. 2018 Understanding of the techniques and methods of analysis, project and applicable investigation and his limitations within the scope of the his speciality.
12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality.
13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality.
14R. 2018 Capacity to apply norms of engineering in the his speciality.
15R. 2018 Knowledge of the social implications, of health and security, environmental, economic and @industrial of the practice in engineering.
16R. 2018 general Ideas on economic questions, organisational and of management (how management of projects, management of risks and change) in the industrial and entrepreneurial context.
17R. 2018 Capacity to collect and interpret data and handle complex concepts inside the his speciality, to issue judgements that involve a reflection on ethical and social questions
18R. 2018 Capacity to manage activities or technical projects or complex professionals of the his speciality, assuming the responsibility of the takes of decisions.
20R. 2018 Capacity to work effectively in national and international contexts, individually and in team, and cooperate with the engineers and people of other disciplines.

Contents

Topic	
Introduction to the #Ordination of Hills	Definitions and concept Conditions and objective minima historical Evolution of the hills and of the Objective #ordination of the Forest Management
Strategic and legislative frame of the *planifiación forest	Planning: international agreements, state and autonomic plans Legislation basic and complementary. Decrees Instructions of #ordination
Content of the instruments of #ordination	Classical structure of a *P.The Typology of instruments minimum Contents
Bases *selvicolas of the #ordination of hills	Relation with the minimum objectives Studio *estático of the hills dynamic Studio of the hills global Structures and conceptual base
Economic bases of the #ordination of hills	Criteria stop the determination of the turn, age of maturity or diameter of *cortabilidade technical Criteria, physical or financial
Methods of #Ordination	Introduction to the practical methods Division by fit Methods of stretches irregular Masses Management by *rodais
Certification of the forest management	Process, diagrams and modalities

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	26	52	78
Problem solving	4	10	14
Case studies	6	12	18
Scientific events	4	6	10
Studies excursion	10	18	28
Problem and/or exercise solving	1	0	1
Report of practices, practicum and external practices	1	0	1
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Methodologies	
	Description
Lecturing	Exhibition by part of the professor of the contained envelope to subject object of study, theoretical bases and/or guidelines of one work, exercise or project to develop pole student.
Problem solving	Activity in the that formulate problems and/or exercises related with the subject. The student owes to develop the suitable or correct solutions by means of it *exercitación of routines, the application of formulas or algorithms, the application of procedures of transformation of the available information and the interpretation of the resulted. It usually employ how supplement of the lesson *maxistral.
Case studies	Analysis of a done, problem or real event with the aim to know it, interpreted, resolved, generate hypothesis, contrast data, *reflexionar, complete knowledges, diagnosed and trained in alternative procedures of solution.
Scientific events	Conferences, talks, exhibitions, round tables, debates... Realized by settings of prestige, that allow *afondar or supplement the contents of the subject.
Studies excursion	Activities of application of the knowledges to concrete situations and of acquisition of basic skills and *procedimentais related with the subject object of study. They develop in spaces no academic outsides. It go in they can be quoted practices of field, visits to events, centres of investigation, companies, institutions... Of academic interest-professional stop the student.

Personalized assistance	
Methodologies	**Description**
Problem solving	
Studies excursion	

Assessment			
	Description	Qualification	Training and Learning Results
Problem and/or exercise solving	Evaluation by means of proof of theoretical concepts	60	B6
Report of practices, practicum and external practices	Continuous evaluation of the individual work. Resolution put student of practical cases and manufacture of report on case of study	40	B6

Other comments on the Evaluation

Sources of information

Basic Bibliography

MADRIGAL, A, **Ordenación de Montes Arbolados**, ICONA,

Complementary Bibliography

GONZALEZ MOLINA, et al., **Manual de Ordenación por Rodales**, Centre Tecnologic Forestal de Catalunya,

DAVIS, L. S.; JOHNSON, K. N.; BETTINGER, P. S.; HOWARD, T. E, **Forest Management (4th ed.)**, McGraw Hill Publishing Co.,

MADRIGAL, A.; ÁLVAREZ, J.G.; RODRÍGUEZ, R.; ROJO, A., **Tablas de producción para los montes españoles**, Fundación Conde del Valle de Salazar,

DÍAZ-MAROTO, I., **Evolución de los métodos de ordenación de montes en España. Situación actual.**, Escuela Politécnica Superior, Lugo,

ACEMM, **Manual de prevención de riesgos laborales en el sector forestal**, Fundación para la prevención de riesgos laborales. Gobierno de Cantabria,

DIEGUEZ, U. et al., **Herramientas Selvícolas para la Gestión Forestal Sostenible en Galicia**, Xunta de Galicia,

MARTÍNEZ CHAMORRO, et al., **Manual para a cubicación, taxación e venda de madeira en pe e biomasa forestal**, Universidade de Vigo,

Manual de ordenación de montes de Andalucía, Junta de Andalucía,

Saura Martínez de Toda, Santiago, **Ordenación Forestal. Ejercicios resueltos**, 978-84-8409-269-8, Edicions de la Universitat de Lleida, 2008

Recommendations

Subjects that continue the syllabus

Physical planning and land management/P03G370V01701

Subjects that are recommended to be taken simultaneously

Projects/P03G370V01503

Subjects that it is recommended to have taken before

Mathematics: Statistics/P03G370V01301
Forestry/P03G370V01401
Use of forests/P03G370V01601
Dasometry/P03G370V01602

Contingency plan

Description

=== EXCEPTIONAL MEASURES SCHEDULED ===
In front of it uncertain and unpredictable evolution of the sanitary alert caused by the COVID- 19, the University establishes join extraordinary planning that will actuate in the moment in that the administrations and the @propio institution determine it attending to criteria of security, health and responsibility, and guaranteeing the *docencia in a @escenario no *presencial or no totally *presencial. These already scheduled measures guarantee, in the moment that was prescriptive, the development of the *docencia of a way but *áxil and effective when being known beforehand (or with a wide advance) pole students and the teaching staff through the tool normalized and institutionalized of the teaching guides DOCNE*T.

=== ADAPTATION OF The METHODOLOGIES ===
* teaching Methodologies that keep : all except visit of studies

* teaching Methodologies that modify : the visit of studies would be deleted and *substituida by a case of study

* Mechanism no *presencial of attention to the students (*titorías): *email, remote campus and *faitic

* Modifications (proceed) of the contained to impart

* additional Bibliography to facilitate to car-learning

* Other modifications

=== ADAPTATION OF The EVALUATION ===
* Proofs already realized
Test XX: [previous Weight 00%] [Weight Proposed 00%]
...

* Pending proofs that keep
Exercise final evaluation: [previous Weight 60%] [Weight Proposed 40%]
Works of continuous evaluation: [previous Weight 40%] [Weight Proposed 60%]

* Proofs that modify
[previous Proof] => [new Proof]

* New proofs

* additional Information

IDENTIFYING DATA				
Wood technology				
Subject	Wood technology			
Code	P03G370V01606			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	2nd
Teaching language	Spanish Galician			
Department				
Coordinator	González Prieto, Óscar			
Lecturers	González Prieto, Óscar			
E-mail	oscargprieto@uvigo.es			
Web	http://www.forestales.uvigo.es			
General description	*Asignatura In which it studies the wood like industrial prime matter, his characteristics and properties			

Skills	
Code	
B11	Ability to characterize the anatomical and technological properties of wood and non-timber forest raw materials, as well as the technologies and industries of these raw materials.
C28	Ability to know, understand and use the principles of: internal anatomical structure and macroscopic properties of wood.
D4	Sustainability and environmental commitment

Learning outcomes			
Expected results from this subject	Training and Learning Results		
2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances. 3R. 2018 Be conscious of the multidisciplinary context of the engineering. 6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project. 7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering. 8R. 2018 Capacity to realize bibliographic researches, consult and use databases and other sources of information with discretion, to realize @simulación and analysis with the objective to realize investigations on technical subjects of the his speciality. 9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality. 13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality. 14R. 2018 Capacity to apply norms of engineering in the his speciality. 17R. 2018 Capacity to collect and interpret data and handle complex concepts inside the his speciality, to issue judgements that involve a reflection on ethical and social questions	B11	C28	D4

Contents	
Topic	
Macroscopic structure of the wood	Albura, heartwood, marrow longitudinal and radial Fabrics Growth in rings Anisotropy of the wood Texture, grain and design
Microscopic structure of the wood	Microscopic structure of the wood of coniferous microscopic Structure of the wood of leafy
Structure submicroscopic	Submicroscopic structure Chemical composition of the wood

Anomalies and defects of the wood	Knots juvenile Wood Anomalies of the growth of the layer cambial Fends Wood of reaction internal Tensions of growth Stock exchanges of resin Other defects of the wood
Properties of the wood	Physical properties of the wood mechanical Properties of the wood
Industrial classification of the wood in roll	Classification in function of the characteristics of the wood and his aptitude for the different industrial applications

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	30	66	96
Laboratory practical	10	20	30
Studies excursion	7	8	15
Introductory activities	1	0	1
Problem and/or exercise solving	4	0	4
Report of practices, practicum and external practices	0	4	4

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

Methodologies

	Description
Lecturing	Exhibition of aims and contents and importance of the same inside the group of competitions of the subject
Laboratory practical	Delivery by heart individual or in group of practices made. In case of teaching no face-to-face or *semi-face-to-face, memory of audiovisual material worked.
Studies excursion	Explanation in situ of industrial and technical processes of laboratory. Presentation of a memory of the visits made. In the case of teaching no face-to-face or *semi-face-to-face, will evaluate memory elaborated employing audiovisual material of processes of manufacture of industries of the wood (videos and digital information).
Introductory activities	Initial explanation of the aims and development of the subject

Personalized assistance

Methodologies	Description
Laboratory practical	The *tutorías will make preferably by telematic means (email, remotecampus, forums of doubts in *FaiTIC). For that student or student that request it will be able to make , inthe measure of the possible, *presencialmente. They will indicate to beginning of course the concrete forms ofcommunication as well as the schedules.

Assessment

	Description	Qualification	Training and Learning Results
Lecturing	Continuous evaluation through the assistance to the classes of classroom. In case of teaching no face-to-face or *semi-face-to-face, will value the active participation in the debate that pose in the classroom/remote campus on the theoretical concepts. Also it will value the participation in the forums that enable in the platform *FaiTIC	20	
Laboratory practical	Continuous evaluation through the assistance to the practices of laboratory. In case of teaching no face-to-face or *semi-face-to-face, will value the active participation in the debate that pose in the classroom/remote campus on the theoretical concepts. Also it will value the participation in the forums that enable in the platform *FaiTIC .	5	
Problem and/or exercise solving	Realisation of partial proofs and finals. Proofs written on the theoretical and practical contents of the subject. Some proofs will be scheduled along the course and will be delivered through the platform of *Teledocencia.	70	

Report of practices, practicum and external practices	Realisation and presentation of the memories of the practices of laboratory. In the case of teaching no face-to-face or *semi-face-to-face, will value memories of audiovisual material with which work .	5

Other comments on the Evaluation

Calendar of examinations:

according to official information of the School.&*nbsp;http://forestales.uvigo.es/gl/docencia/exames/

Sources of information

Basic Bibliography

Complementary Bibliography

Santiago Vignote Peña, **TECNOLOGIA DE LA MADERA (3ª ED.)**, Muni Prensa,

Recommendations

Subjects that continue the syllabus

Primary wood processing industries/P03G370V01706
Wood preservation and drying technology/P03G370V01705

Subjects that it is recommended to have taken before

Physics: Physics I/P03G370V01102
Physics: Physics II/P03G370V01202
Botany/P03G370V01303

Other comments

Eligible subject for dual training projects as established by the memory of the degree.

Contingency plan

Description

=== EXCEPTIONAL MEASURES SCHEDULED ===
In front of the uncertain and unpredictable evolution of the sanitary alert caused by the *COVID-19, the University of Vigo establishes an extraordinary planning that will activate in the moment in that the administrations and the own institution determine it attending to criteria of security, health and responsibility, and guaranteeing the teaching in a no face-to-face stage or partially face-to-face. These already scheduled measures guarantee, in the moment that was prescriptive, the development of the teaching of a more agile and effective way when being known in advance (or with a wide *antelación) by the students and the *profesorado through the tool normalised and institutionalised of the educational guides.

* Educational methodologies that keep
introductory Activities
Lesson *magistral
Resolution of problems
Work *tutelado
* educational Methodologies that modify
The exit of practices scheduled will not make in the case of teaching no face-to-face or in the case that it do not allow with teaching *semi-face-to-face. *substituirá By practical observation of audiovisual material of processes of manufacture of industries of the wood (videos and digital information)
* Mechanism no face-to-face of attention to the students (*tutorías)
virtual Dispatch, email and habilitation of forums in the platform *FaiTIC
* Modifications (if they proceed) of the contents to give
The exit of practices scheduled will not make in the case of teaching no face-to-face or in the case that it do not allow with teaching *semi-face-to-face. *substituirá By practical observation of audiovisual material of processes of manufacture of industries of the wood (videos and digital information)
* additional Bibliography to facilitate the car-learning
is not necessary, since they facilitate it to him materials in the platform of *teledocencia, many of them of own preparation by part of the professors, to be able to make a follow-up of the matter
* Other modifications
is not necessary
=== ADAPTATION OF THE EVALUATION ===
* Test already made
keeps the weight when being adapted all the proofs to any circumstance

* Test slopes that keep
keeps the weight when being adapted all the proofs to any circumstance
* Test that they modify
is not necessary
* New proofs
is not necessary
* additional Information
does not require

IDENTIFYING DATA				
Xylo energy				
Subject	Xylo energy			
Code	P03G370V01607			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	2nd
Teaching language	Spanish Galician			
Department				
Coordinator	Ortiz Torres, Luis			
Lecturers	Ortiz Torres, Luis			
E-mail	lortiz@uvigo.es			
Web	http://www.webs.uvigo.es/lortiz			
General description	(*)procesos de transformación física y conversión energética de biomasa			

Skills	
Code	
B1	Ability to understand the biological, chemical, physical, mathematical and representation systems necessary for the development of professional activity, as well as to identify the different biotic and physical elements of the forest environment and renewable natural resources susceptible to protection, conservation and exploitations in the forest area.
B6	Ability to measure, inventory and evaluate forest resources, apply and develop silvicultural techniques and management of all types of forest systems, parks and recreational areas, as well as techniques for harvesting timber and non-timber forest products
B11	Ability to characterize the anatomical and technological properties of wood and non-timber forest raw materials, as well as the technologies and industries of these raw materials.
C26	Ability to know, understand and use the principles of: xiloenergetic industrial processes
D2	Ability to communicate orally and written in Spanish or in English
D9	Teamwork skills, skills in interpersonal relationships and leadership.
D10	Autonomous Learning

Learning outcomes	
Expected results from this subject	Training and Learning Results

2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances. 3R. 2018 Be conscious of the multidisciplinary context of the engineering. 5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial. 6R. 2018 Capacity to project, design and develop complex products (pieces, component, products finished, etc.), processes and systems of the his speciality, that fulfil the requirements established, including the knowledge of the social aspects, of health and environmental security, economic and industrial; as well as select and apply methods of appropriate project. 7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering. 8R. 2018 Capacity to realize bibliographic researches, consult and use databases and other sources of information with discretion, to realize @simulación and analysis with the objective to realize investigations on technical subjects of the his speciality. 9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality. 11R. 2018 Understanding of the techniques and methods of analysis, project and applicable investigation and his limitations within the scope of the his speciality. 12R. 2018 practical Competition to resolve complex problems, realize complex projects of engineering and realize specific investigations stop his speciality. 13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality. 14R. 2018 Capacity to apply norms of engineering in the his speciality. 15R. 2018 Knowledge of the social implications, of health and security, environmental, economic and @industrial of the practice in engineering. 17R. 2018 Capacity to collect and interpret data and handle complex concepts inside the his speciality, to issue judgements that involve a reflection on ethical and social questions 19R. 2018 Capacity to communicate of effective way information, ideas, problems and solutions in the field of the engineering and with the society in general. 21R. 2018 Capacity to recognize the need of a continuous training and realize this activity of independent way during his professional life. 22R. 2018 Capacity to be to the day of the scientific and technological news.	B1 B6 B11	C26	D2 D9 D10

Contents	
Topic	
Topic 1.- INTRODUCTION: BIOMASS AS A SOURCE OF ENERGY	1.1.- Concept and forms of BIOMASS 1.2.- Historical evolution of the energy utilization of Biomass .. 1.3.- Sources of Biomass 1.4.- Characteristics of the biomass from the energetic point of view 1.5.- Advantages presented by the energy use of the Phytomass 1.6.- Technologies for energy conversion of biomass 1.6.1.- Chemical methods of conversion 1.6.2.- Thermochemical conversion methods 1.6.3.- Biochemical conversion methods 1.6.4.- Efficiency of the different methods of energy conversion. 1.7.- Products derived from biomass 1.7.1.- Macroeconomic aspects of the production and use of biofuels
2.- XILOGENERATED ENERGIES	2.- XILOGENERATED ENERGIES
3. COLLECTION AND OBTAINMENT OF RESIDUAL BIOMASS	3.1 systems for collecting residual forest biomass 3.1.1 Forest machines
4. PRETRATING PROCESSES (PHYSICAL TRANSFORMATION) OF RESIDUAL PHYTOMASE	4.1 Chipping and packaging 4.1.1 Problems of large chipping 4.2 Natural Drying 4.3 Forced drying grind 4.4 4.4.- Sieving 4.5.- densification
Topic 5. DEHYDRATION OF RESIDUAL PHYTOMASE	5.1 Water in wood 5.1.1 Humidity Equilibrium 5.1.2 Influence of moisture content on calorific 5.2 thermogenesis 5.2.1 dynamic drying full of wood waste chips 5.2.2 Dry matter losses 5.3 Practical experiences of natural drying 5.3.1 Forced ventilation 5.3.2 Experiences in Spain

Topic 6. COMPACTION OF RESIDUAL PHYTOMASE	6.1 Historical evolution 6.2 Background to research and development 6.2.1 laboratory experimentation 6.2.2 Experimentation in industrial presses 6.2.3 Studies of theoretical models 6.3 Prospects for the future 6.4 Problems and densification technologies on an industrial scale 6.4.1 manufacture of briquettes 6.4.2 pelletizing
Topic 7. CURRENT SITUATION OF THE FUEL PRODUCTION SECTOR IN SPAIN	7.1 The raw materials used 7.2 The equipment used 7.2.1 Sizing companies 7.3 Products obtained 7.3.1 Packaging 7.4.- Consumer sectors 7.4.1.- prices
Topic 8. CURRENT SITUATION OF THE COMBUSTIBLE PELLET MANUFACTURING SECTOR IN SPAIN	8.1 Characteristics of fuel pellets 8.2 prices
Topic 9.- THERMOCHEMICAL PROCESSES OF ENERGY CONVERSION OF PHYTOMASE.	9.1.- Combustion 9.2.- Gasification 9.3.- Pyrolysis 9.4.- Liquefaction
Topic 10. THE COMBUSTION	10.1 The Theory of Combustion 10.1.1.- types of combustion 10.1.2.- minimum combustion air 10.1.3.- Combustion fumes 10.2.- Combustion equipment 10.2.1.- Fluidized combustion (FBC)
Topic 11.GASIFICATION	11.1.- Types of gasifiers 11.2.- Gasification with air 11.3.- Gasification with oxygen and / or steam 11.4.- Gasification with Hydrogen 11.5.- Gasification with catalysts
Topic 12. PIROLISIS	12.1.- Products obtained 12.2.- Carbonization (charcoal)
Topic 13.- ELECTRICAL ENERGY GENERATION EQUIPMENT AND SYSTEMS	
Topic 14.- ENERGY CROPS OF SHORT ROTATION	14.1.- Prospects of intensive cultivation of biomass in the European Union before the new Community Agricultural Policy (CAP) 14.2.- Types of energy crops 14.2.1.- Agroelectrical crops 14.2.2.- Bioalcohol 14.2.3.- Bio-fuels
PRACTICE Nº 1	SAMPLES OF WASTE LABORATORY ANALYSIS PLACE: E. XILOGENERADAS LABORATORY
PRACTICE Nº2	PILOT PLANT FOR SLIPPING-MILLING-DENSIFICATION PLACE: E. XILOGENERADAS WORKSHOP
PRACTICE Nº 3	ASTILLADO DESCORTEZADO COMBUSTION COGENERATION PLACE: ENCE (PONTEVEDRA) DEPARTURE FROM THE EIF - 10h
PRACTICE Nº 4	MOLIENDA DRYING PELETIZED COGENERATION PLACE: PÉLET FACTORY (BASTAVALES) EIF OUTPUT - 10 h
PRACTICE Nº 5	Visit to an installation with forest biomass boiler. Location: Campus de Pontevedra
PRACTICES Nº 6-7	Resolution of energy calculation exercises

Planning			
	Class hours	Hours outside the classroom	Total hours
Practicum, External practices and clinical practices	18	35	53
Laboratory practical	8	10	18
Lecturing	26	52	78
Essay questions exam	1	0	1

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

Methodologies	
	Description
Practicum, External practices and clinical practices	These are views of industrial installations
Laboratory practical	These are lab work and pilot plant of xylenogenic energies
Lecturing	These are classroom classes

Personalized assistance	
Methodologies	**Description**
Lecturing	It refers to the theory classes held in the classroom
Practicum, External practices and clinical practices	These are visits to industrial facilities
Laboratory practical	Laboratory work and pilot plant of xylogen energies

Assessment			
	Description	Qualification	Training and Learning Results
Practicum, External practices and clinical practices	(*)Valorarase a asistencia ás clases presenciais e visitas/prácticas de campo	20	C26
Laboratory practical	(*)Valoraranse os traballos/exercicios realizados durante as mesmas.	20	C26
Essay questions exam	(*)Avaliarase mediante un exame final	60	C26

Other comments on the Evaluation

the student must approve a practical part and a theoretical part separately. Exam dates 28 DE MAIO 10h 10 DE XULIO 12h

Sources of information

Basic Bibliography

Complementary Bibliography

Recommendations

Other comments

Eligible subject for dual training projects as established by the memory of the degree.

Contingency plan

Description

=== EXCEPTIONAL PLANNING ===
Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University of Vigo establishes an extraordinary planning that will be activated when the administrations and the institution itself determine it, considering safety, health and responsibility criteria both in distance and blended learning. These already planned measures guarantee, at the required time, the development of teaching in a more agile and effective way, as it is known in advance (or well in advance) by the students and teachers through the standardized tool.

=== ADAPTATION OF THE METHODOLOGIES ===
* Teaching methodologies maintained

* Teaching methodologies modified

* Non-attendance mechanisms for student attention (tutoring)

* Modifications (if applicable) of the contents

* Additional bibliography to facilitate self-learning

* Other modifications

=== ADAPTATION OF THE TESTS ===
* Tests already carried out
Test XX: [Previous Weight 00%] [Proposed Weight 00%]
...

* Pending tests that are maintained
Test XX: [Previous Weight 00%] [Proposed Weight 00%]
...

* Tests that are modified
[Previous test] => [New test]

* New tests

* Additional Information

IDENTIFYING DATA				
Xestión ambiental				
Subject	Xestión ambiental			
Code	P03G370V01608			
Study programme	Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3	2c
Teaching language				
Department				
Coordinator				
Lecturers				
E-mail				
Web				
General description				

Competencias
Code

Resultados de aprendizaxe	
Expected results from this subject	Training and Learning Results

Contidos
Topic

Planificación			
	Class hours	Hours outside the classroom	Total hours
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Metodoloxía docente	
	Description

Atención personalizada

Avaliación		
Description	Qualification	Training and Learning Results

Other comments on the Evaluation

Bibliografía. Fontes de información
Basic Bibliography
Complementary Bibliography

Recomendacións

Plan de Continxencias

IDENTIFYING DATA				
Environmental Engineering				
Subject	Environmental Engineering			
Code	P03G370V01609			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	2nd
Teaching language	Spanish Galician			
Department				
Coordinator	Ortiz Torres, Luis			
Lecturers	Ortiz Torres, Luis			
E-mail	lortiz@uvigo.es			
Web	http://www.webs.uvigo.es/lortiz			
General description	(*)metodos e sistemas de xestión medioambiental			

Skills
Code

Learning outcomes	
Expected results from this subject	Training and Learning Results

Contents	
Topic	
A. ATMOSPHERIC POLLUTION	A.1. ENVIRONMENTAL POLLUTANTS A.2. EFFECTS OF ATMOSPHERIC POLLUTION A.3.DESTRUCTION OF THE OZONE LAYER A.4.GLOBAL QUALITY A.4.1. Greenhouse gases A.4.2. The Kyoto Protocol TO 5. ACID RAIN A.6. OTHER CONTAMINANTS A.7.RIGHTS CORRUPTION OF POLLUTION A.8. ALTERNATIVE SOURCES OF ENERGY TO REDUCE ATMOSPHERIC EMISSIONS A.9. THE COGENERATION OF HEAT AND ELECTRICITY
B. RESIDUAL WATERS B.1. WATER	B.2. MANAGEMENT SYSTEMS: B.3. PHYSICO-CHEMICAL WATER PARAMETERS B.4. RESIDUAL WATER CONTAMINANTS B.5. RESIDUAL WATER PURIFICATION SYSTEMS B.5.2. Primary treatment B.5.2.1. Physical and Chemical Treatments B.5.3. Secondary treatment B.5.3.1. Biological Treatments B.5.4. Tertiary treatment B.5.5. Miscellaneous Treatments B.6. THE ANAEROBIA DIGESTION PROCESS B.7. FLOOR TREATMENT B.8. CASE STUDY
C. URBAN SOLID WASTE	C.1. LOS R.S.U. C.2. TREATMENT SYSTEMS C.2.2. CONTROLLED SHIFT C.2.2.1. Landfill with controlled use C.2.3. COMPOUND C.2.4. INCINERATION C.2.5. PYROLYSIS C.2.6. COMPARISON BETWEEN MANAGEMENT SYSTEMS

D. COMPOSITION	D.1. THE COMPOUND PROCESS D.1.1. PHYSICAL PARAMETERS D.1.2. COMPOUND SYSTEMS D.1.2.1. Indoor composting systems D.1.3. DEPURATION OF COMPOST D.1.4. COMPOST CHARACTERISTICS D.1.5. USING THE COPOST D.2. CROPS OF INTENSIVE TYPE
E. THE ANAEROBIA DIGESTION	E.1. THE ANAEROBIA DIGESTION E.2. PARAMETERS OF OPERATION AND CONTROL OF THE ANAEROBIC PROCESSES E.3. ANAEROBIA DIGESTION TECHNOLOGY E.3.1. Discontinuous digesters E.3.2. Continuous digesters E.3.2.1. Digesters with suspended biomass E.3.3. Two Phase Digester E.4. CONTROLLED VERTEDERO E.5. ANAEROBIA DIGESTION FACILITIES E.5.1. DESCRIPTION OF AN ANAEROBIA DIGESTION PLANT E.6. EXAMPLE OF INDUSTRIAL FACILITIES
F. THE RECYCLING	F.1. INTRODUCTION F.2. RECYCLED THEORY F.3. RECYCLING SYSTEMS F.4. PROBLEM OF THE RECYCLING PROCESS F.5. ADVANTAGES CONCERNING RECYCLING F.6. RECYCLING OF PAPER AND CARDBOARD F.6.1. PRODUCTION OF PASTE AND PAPER F.6.2. RECYCLING PAPER F.6.2.1. PREPARATION OF PAPER PASTE FROM PAPELOTE F.6.2.2.- DISFRANCED F.6.2.3.-DEPURATION F.6.3.4. UNLOCKED F.6.3.5. REFINE F.6.3.6. DIVISION F.6.3.7. IT'S HEAVY F.6.3.8. DISPERSION F.6.3.9. DESTINED
G. TOXIC AND DANGEROUS WASTE	G.1. IDENTIFICATION AND QUANTIFICATION OF RTP. G.2. PRODUCTION MANAGER RELATIONSHIP G.1.1. Obligations of the RPT Producer G.1.1.1. Authorization request G.2.1.2. Packaging and Labeling of Hazardous Wastes G.2.1.3. Storage of hazardous waste G.2.1.4. Annual statement G.2.2. OBLIGATIONS OF SMALL PRODUCERS OF HAZARDOUS WASTE

Planning

	Class hours	Hours outside the classroom	Total hours
Studies excursion	18	40	58
Case studies	7	5	12
Autonomous problem solving	9	20	29
Lecturing	17	33	50
Essay questions exam	1	0	1

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

Methodologies

Description

Studies excursion	Practices Practice 1.- Waste water treatment plant (EDAR - Pontevedra) Practice 2.- MSW treatment plant (SOGAMA - Cerceda) Practice 3.- Cogeneration and treatment of effluents (ENCE) Practice 4.- Cogeneration and waste management (ECOWARM- Bastabales) The A91 competition will be developed in the field of industrial facilities visits.
Case studies	Individual or paired an individual chosen within the contents of the program for the elaboration of a situation or concrete case that will be presented publicly.
Autonomous problem solving	This is to present flow diagrams of the facilities visited during the course
Lecturing	These are theoretical classes in the classroom

Personalized assistance

Methodologies	Description
Studies excursion	These are views of industrial facilities
Case studies	It is a practical work and present it publicly

Assessment

	Description	Qualification	Training and Learning Results
Studies excursion	(*)Valórase a asistencia dos alumnos ás saídas prácticas	10	
Case studies	(*)O traballo é valorado e avaliado polos propios compañeiros tras a presentación do mesmo e polo profesor quen terá en consideración todos os factores sinalados no apartado de traballos tutelados	20	
Lecturing	(*)Valorarase a asistencia ás clases.	10	
Essay questions exam	(*)Avaliaranse os coñecementos adquiridos durante o desenvolvemento da materia.	60	

Other comments on the Evaluation

Sources of information

Basic Bibliography

Sánchez, Antoni, **De residuo a recurso**, 1, Mundi Prensa, 2014
Gil, Manuel, **Depuración de aguas residuales**, 1, CSIC, 2013
Seoanez, Mariano, **Manual de aguas residuales industriales**, 1, Mac Graw Hill, 2012
Picoraio, Simona, **Gestión de residuos Urbanos**, 1, CEYSA, 2016
Seoanez, Mariano, **Tratado de la contaminación atmosférica**, 1, Mundi Prensa, 2012

Complementary Bibliography

Recommendations

Other comments

Eligible subject for dual training projects as established by the memory of the degree.

Contingency plan

Description

=== EXCEPTIONAL PLANNING ===
Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University of Vigo establishes an extraordinary planning that will be activated when the administrations and the institution itself determine it, considering safety, health and responsibility criteria both in distance and blended learning. These already planned measures guarantee,

at the required time, the development of teaching in a more agile and effective way, as it is known in advance (or well in advance) by the students and teachers through the standardized tool.

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* Other modifications

=== ADAPTATION OF THE TESTS ===
* Tests already carried out
Test XX: [Previous Weight 00%] [Proposed Weight 00%]
...

* Pending tests that are maintained
Test XX: [Previous Weight 00%] [Proposed Weight 00%]
...

* Tests that are modified
[Previous test] => [New test]

* New tests

* Additional Information