



(*)Escola de Enxeñaría Forestal

Presentation

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

Our faculty offers the Degree in Forest Engineering

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

Address

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



Faculty Management

Managerial team:

Director: D. Enrique Valero Gutiérrez del Olmo

Deputy director: D^a. Angeles Cancela Carral

Secretary: D. Juan Picos Martín

Governing bodies:

- Faculty Assembly

- Commissions:

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

Departments in the Centre:

(*)Servizo e Infraestructuras do Centro

(*)

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

Aulas e laboratorios:

Aulas docentes:

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

Laboratorios e talleres:

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

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

Additional information

STUDENTS OFFICE:

Number tfno.: 986 801913

And-mail: daeuetf@uvigo.es



Main Regulations

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

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

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

<http://extension.uvigo.es>

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

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

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

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

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

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

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

Other Information

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

(*)Grao en Enxeñaría Forestal

Subjects

Year 4th

Code	Name	Quadmester	Total Cr.
P03G370V01701	Physical planning and land management	1st	6
P03G370V01702	Hunting and fishing management	1st	6
P03G370V01703	Pathology and forest pests	1st	6
P03G370V01704	Forest and pasture management	1st	6
P03G370V01705	Wood preservation and drying technology	1st	6
P03G370V01706	Primary wood processing industries	1st	6
P03G370V01707	Industrial organisation and processes in the wood industry	1st	6
P03G370V01708	Product development and innovation in the wood industry	1st	6
P03G370V01801	Management of protected areas and biodiversity	2nd	6
P03G370V01802	Forest Fires	2nd	6
P03G370V01803	Cellulose, pulp and paper	2nd	6
P03G370V01804	Quality control and prevention of occupational hazards in the forestry industry	2nd	6
P03G370V01981	Externships: Internships	2nd	6
P03G370V01991	Final Year Dissertation	2nd	12

IDENTIFYING DATA				
Physical planning and land management				
Subject	Physical planning and land management			
Code	P03G370V01701			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language				
Department				
Coordinator				
Lecturers				
E-mail				
Web				
General description				

Competencies	
Code	
B6	CG-06: Capacidade para identificar os diferentes elementos: elementos bióticos.
B9	CG-09: Capacidade para analizar a estrutura e función ecolóxica dos sistemas e recursos forestais, incluíndo as paisaxes.
B31	CG-31: Capacidade para aplicar as técnicas de ordenación forestal e planificación do territorio, así como os criterios e indicadores da xestión forestal sostible no marco dos procedementos de certificación forestal.
C32	(*)CE-32: Capacidade para coñecer, comprender e utilizar os principios de: ordenación e planificación do territorio. Paisaxismo forestal.
D1	(*)CBI 1: Capacidade de análise e síntese.
D2	(*)CBI 2: Capacidade de organización e planificación.
D4	(*)CBI 4: Coñecementos básicos de informática.
D5	(*)CBI 5: Capacidade de xestión da información.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.
D7	(*)CBI 7: Adquirir capacidade na toma de decisións.
D8	(*)CBP 1: Capacidades de traballo en equipo, con carácter multidisciplinar e en contextos tanto nacionais como internacionais.
D9	(*)CBP 2: Habilidades nas relacións interpersoais.
D13	(*)CBS 1: Aprendizaxe autónoma.
D20	(*)CBS 8: Sensibilidade cara a temas ambientais.

Learning outcomes			
Expected results from this subject	Training and Learning Results		
(*)CE-32: Capacidad para conocer, comprender y utilizar los principios de: Ordenación y Planificación del Territorio. Planes de Paisajismo forestal.	B6	C32	D1
	B9		D2
	B31		D4
			D5
			D6
			D7
			D8
			D9
			D13
			D20

New

Contents	
Topic	
Topic I: GENERAL THEORY OF PLAN. PHYSICS	Concept of Physical Planning. Physical Planning in Engineering Background of Physical Planning Environmental and integrated inventories Evolution of Physical Planning studies Definitions of Physical Planning Ecologically based physical planning

Topic II: PHYSICAL PLANNING PROCESS

Typology and Purposes of Planning
Operational techniques
Levels of application
Fundamental relationships
General scheme
Definition of objectives
Inventory
Modeling
Spatial classification
Choice of Alternatives
Decision making
Contrast of Planning
Planning follow-up

Topic III: THE TOOLS FOR PHYSICAL PLANNING

Introduction to Geographic Information Systems.
The S.I.G. Applied to Physical Planning and Territorial Planning.

Planning

	Class hours	Hours outside the classroom	Total hours
Tutored works	0	58	58
Presentations / exhibitions	25	25	50
Case studies / analysis of situations	21	21	42

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

Methodologies

	Description
Tutored works	The student, individually or in groups, prepares a paper on the subject of matter or prepare seminars, research, memoirs, essays, summaries of readings, lectures, etc.. Generally it is an autonomous activity / of the student / s that includes finding and collecting information, reading and literature management, writing ...
Presentations / exhibitions	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.
Case studies / analysis of situations	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.

Personalized attention

Methodologies	Description
Tutored works	

Assessment

	Description	Qualification	Training and Learning Results		
Tutored works	(*).	50	B6 B9 B31	C32	D1 D2 D4 D5 D6 D7 D8 D9 D13 D20
Presentations / exhibitions	(*).	50	B6 B9 B31	C32	D1 D2 D4 D5 D6 D7 D8 D9 D13

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

Recommendations

IDENTIFYING DATA				
Hunting and fishing management				
Subject	Hunting and fishing management			
Code	P03G370V01702			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language				
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	(*)Preténdese que o alumno adquira os coñecementos necesarios para a realización de Inventarios poboacionais, redacción de proxectos de xestión da caza e da pesca, avaliación e medidas correctoras dos hábitats e para a realización de repoboacións cinxéticos e piscícolas			

Competencies

Code	
B25	CG-25: Capacidade para xestionar e protexer as poboacións de fauna forestal, con especial énfase nas de carácter cinxético e piscícola.
B35	CG-35: Capacidade para deseñar, dirixir, elaborar, implantar e interpretar proxectos.
B36	CG-36: Capacidade para deseñar, dirixir, elaborar, implantar e interpretar plans.
B37	CG-37: Capacidade para redactar informes técnicos.
B38	CG-38: Capacidade para redactar memorias de recoñecemento.
B39	CG-39: Capacidade para redactar valoracións.
B40	CG-40: Capacidade para redactar peritaxes.
B41	CG-41: Capacidade para redactar taxacións.
C33	(*)CE-33: Capacidade para coñecer, comprender e utilizar os principios de: xestión de caza e pesca. Sistemas acuícolas.
D1	(*)CBI 1: Capacidade de análise e síntese.
D2	(*)CBI 2: Capacidade de organización e planificación.
D3	(*)CBI 3: Capacidade de comunicación oral e escrita tanto na lingua vernácula como en linguas estranxeiras.
D5	(*)CBI 5: Capacidade de xestión da información.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.
D7	(*)CBI 7: Adquirir capacidade na toma de decisións.
D8	(*)CBP 1: Capacidades de traballo en equipo, con carácter multidisciplinar e en contextos tanto nacionais como internacionais.
D9	(*)CBP 2: Habilidades nas relacións interpersoais.
D11	(*)CBP 4: Habilidades de razoamento crítico.
D13	(*)CBS 1: Aprendizaxe autónoma.
D14	(*)CBS 2: Adaptación a novas situacións.
D15	(*)CBS 3: Creatividade.
D16	(*)CBS 4: Liderado.
D20	(*)CBS 8: Sensibilidade cara a temas ambientais.

Learning outcomes

Expected results from this subject	Training and Learning Results		
(*)	B25	C33	D1
	B35		D2
	B36		D3
	B37		D5
	B38		D6
	B39		D7
	B40		D8
	B41		D9
			D11
			D13
			D14
			D15
			D16
			D20

Contents

Topic

BLOCK I: HUNTING AND KINETIC RESOURCES	MODULE I: BASIC CONCEPTS OF CINEGÉTICAL MANAGEMENT MODULE II: TECHNIQUES FOR IMPROVING THE CONDITIONS OF REPRODUCTION AND CREATION MODULE III: IMPROVEMENT TECHNIQUES COND. OF SHELTER AND FOOD MODULE IV: SUSTAINABLE APPROVAL METHODS MODULE V: HUNTING IN THE CONTEXT OF RURAL DEVELOPMENT
BLOCK 2: AQUACULTURE	MODULE I. INTRODUCTION TO AQUACULTURE IN THE FLUVIAL HABITAT: MODULE II. AQUACULTURE AND FLUVIAN FISHERIES: MODULE III. FISH SPECIES: -SMALMIDS MODULE IV. FISH SPECIES: -CYPRINESIS: MODULE V. FISH SPECIES: -MOTHER SPECIES: MODULE VI.- METHODS OF MANAGEMENT MODULE VII.- METHODS OF USE MODULE VIII.-CONTINESAL WATER MANAGEMENT PROJECTS

Planning

	Class hours	Hours outside the classroom	Total hours
Autonomous practices through ICT	120	0	120
Multiple choice tests	30	0	30

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

Methodologies

	Description
Autonomous practices through ICT	It will be the development of the subject through the new ICT known as tele-training or e-learning, not limited to mere written expositions, but making them of a sharply participatory nature with the development of animations and simulations, in complex situations, that oblige the Student to interact with the subject matter. All the competences are treated and developed in the autonomous practical sessions through ICT as well as in the master sessions and the field trips.

Personalized attention

Methodologies	Description
Autonomous practices through ICT	
Tests	Description
Multiple choice tests	

Assessment

	Description	Qualification	Training and Learning Results		
Autonomous practices through ICT	(*)Saídas de campo, traballos relacionados coa xestión piscícola e cinexética.	50	B25 B35 B36 B37 B38 B39 B40 B41	C33	D1 D2 D3 D5 D6 D7 D8 D9 D11 D13 D14 D15 D16 D20
Multiple choice tests	(*)Diferentes preguntas sobre a materia vista nas sesións maxistras así como nas prácticas realizadas.	50		C33	

Other comments on the Evaluation

Sources of information
Basic Bibliography
Complementary Bibliography
ARRIGNON, J., Ecología y piscicultura de aguas dulces. , (1979),
BARNABE, G, Acuicultura , 1989,
BEVERIDGE, M., Acuicultura en jaulas , 1984,
BLANCO CACHAFEIRO, M. C, La trucha. Cría industrial. , 1995,
DOADRIO, I., B. ELVIRA y. Y. BERNAT, Peces continentales españoles. Inventario y clasificación de zonas fluviales , 1991,
DRUMOND, S., Cría de la trucha , 1988,
ESPINOSA, J. y LABARTA, U., Reproducción en Acuicultura. , 1987,
FAO, La formulación de proyectos de acuicultura , 1991,
GARCÍA-BADELL, J. J, Tecnología de las explotaciones piscícolas , 1985,
GARCÍA DE JALÓN, D.; G. PRIETO y F. HERRERUELA, Peces ibéricos de agua dulce , 1989,
GUEGUEN, J. y PROUZET, Le saumon atlantique , 1994),
HUET, M., Tratado de piscicultura , 1983,
LOBÓN CERVIÁ, JAVIER, Dinámica de poblaciones de peces en ríos. Pesca eléctrica y métodos de capturas sucesivas en la estima de abundancias , 1991,
MUUS, B. & P. DAHLSTÖM, Los peces de agua dulce de España y de Europa; pesca, biología, importancia económica , 1970,
ROBERTS, R. J, Patología de los peces , 1981,
SEDWICK, S.D., Cría de l trucha , 1987,
SHEPHERD, J. C. & BROMAGE, R. N., Cultivo intensivo de peces. , 2008,
STREBLE, H. y D. KRAUTER, Atlas de los Microorganismos de Agua Dulce , 2007,
ALVARADO CORRALES, E. et al., Manual de Ordenación y Gestión Cinegética. , 2001,
SÁNCHEZ GASCÓN, A, Guardas de Caza: Legislación , 1996,
AUDEBERT, Tristan (Henri Béraud), La caza de la becada , 1997,
BERTON, Jean, El mundo de las armas de caza , 2003,
ALBENTOS, Marqués de, Arte general de cacerías y monterías. , Ed. Clan, Sevilla,
BOZA, Moisés D, El trampeo y demás artes de caza tradicionales en la península Ibérica. , 2003,
Recommendations
Subjects that continue the syllabus
Projects/P03G370V01503
Physical planning and land management/P03G370V01701
Subjects that are recommended to be taken simultaneously
Forestry Ecology/P03G370V01402
Forest exploitation/P03G370V01601
Forestry hydrology/P03G370V01604
Subjects that it is recommended to have taken before
Hydraulics/P03G370V01404
Forest entomology and Zoology/P03G370V01305

IDENTIFYING DATA**Pathology and forest pests**

Subject	Pathology and forest pests			
Code	P03G370V01703			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language				
Department				
Coordinator	López de Silanes Vázquez, María Eugenia			
Lecturers	López de Silanes Vázquez, María Eugenia			
E-mail	esilanes@uvigo.es			
Web	http://http://webs.uvigo.es/ilanes/index.htm			
General description	(*)Comprender e aprender os conceptos básicos e a terminoloxía específica, para coñecer e diferenciar as enfermidades e pragas máis importantes, resaltando as que afectan ao ámbito forestal do noso territorio			

Competencies

Code	
B1	CG-01: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Biolóxicos.
B11	CG-11: Coñecemento dos procesos de degradación que afecten aos sistemas e recursos forestais: pragas.
B16	CG-16: Capacidade para o uso das técnicas de conservación da biodiversidade.
C34	(*)CE-34: Capacidade para coñecer, comprender e utilizar os principios de: enfermidades e pragas forestais.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.
D20	(*)CBS 8: Sensibilidade cara a temas ambientais.

Learning outcomes

Expected results from this subject	Training and Learning Results		
(*)	B1 B11 B16	C34	D6 D20
New	B1 B11 B16	C34	D6 D20

Contents

Topic	
Topic 1. Concept of Disease and Phytopathology. Classification of diseases.	
Topic 2. Symptomatology of diseases. Types of symptoms.	
Topic 3. Concept of pathogen and parasite. Stages of disease development.	
Topic 4. Types of attacks from pathogens to plants.	
Topic 5. How plants are defended by pathogens.	
Topic 6. Means of control against pathogens: preventive and curative. Control methods: regulators (legislative), cultural, biological, physical and chemical.	
Topic 7. Generalities of fungi. Important groups in Forest Pathology.	
Topic 8. Rotting, drowning or damping-off in seedbeds.	
Topic 9. Diseases of leaves in conifers	9.1 Red band (<i>Mycosphaerella pini</i> and <i>M. dearnessii</i>) 9.2 Blight of pine needles (<i>Lophodermium pinastri</i>). 9.3 Mention of <i>Meloderma desmazieri</i>
Topic 10. Diseases of leaves in angiosperms	10.1 Oidium or odium of the oak, <i>Erysiphe alphitoides</i> . 10.2 Spotting of eucalyptus leaves, <i>Mycosphaerella</i> sp. 10.3 Gray mold, <i>Botryotinia fuckeliana</i> = <i>Botrytis cinerea</i>

Topic 11. Diseases of trunk and branches of conifers.	11.1 Cancers: <i>Sphaerosopsis sapinea</i> = <i>Granulodiplodia sapinea</i> ; <i>Nectria cinnabarina</i> = <i>Tubercularia vulgaris</i> . 11.2 Royas: <i>Cronartium flaccidum</i> or white rust of pine. 11.3 Resinous pineal cancer <i>Gibberella circinata</i> = <i>Fusarium circinatum</i> .
Topic 12. Diseases of trunk and branches in Angiosperms.	12.1 Chestnut brown, <i>Cryphonectria parasitica</i> . 12.2 Carbon or carbonaceous disease, <i>Biscogniauxia mediterranea</i> = <i>Hypoxylon mediterraneum</i> . 12.3 Grafiosis of elm. <i>Ophiostoma ulmi</i> , <i>O. novo-ulmi</i>
Topic 13. Root diseases.	13.1 Chestnut ink, <i>Phytophthora cinnamomi</i> . 13.2 In conifers, <i>Heterobasidion annosum</i> . 13.3 Pathogen of numerous species. <i>Armillaria</i> sp.
Topic 14. Diseases caused by nematode viruses and bacteria.	14.1 Pine wood nematode, <i>Bursaphelenchus xylophilus</i>
Topic 15. General ideas about insects. Classification: Apterygota. Exopterygota. Endopterygota.	
Topic 16. Biological balance and plague phenomenon.	
Topic 17. Methods of pest control.	
Topic 18. Conifer pests	18.1 Defoliator insects: <i>Thaumetopoea pityocampa</i> . 18.2 Insect borers, most representative species: scythes (<i>Ips sexdentatus</i>) ceramínicos (<i>Monochamus galloprovincialis</i>), etc. 18.3 Most representative taxa of sucking insects.
Topic 19. Eucalyptus pests.	19.1 Defoliating insects, <i>Goniapterus scutellatus</i> 19.2 Insect borers, <i>Phoracantha semipunctata</i> . 19.3 Sucking insects, <i>Ctenarytaina spatulata</i>
Topic 20. Review some of the most representative pests of garden trees. Mention of the plagues of the chestnut fruit.	
(*) Tema 21. Mención de algunas plagas en frondosas autóctonas.	(*)21.1 Insectos defoliadores 21.2 Insectos perforadores 21.3 Insectos chupadores

Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	30	70	100
Laboratory practises	20	20	40
Outdoor study / field practices	10	0	10

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

Methodologies

	Description
Master Session	Exposition, by the teacher, of the contents of the subject, theoretical bases and / or guidelines of a work to be developed by the students
Laboratory practises	Application of the knowledge of the subject. Learning and handling of basic techniques.
Outdoor study / field practices	Realization of exits to forest ecosystems and / or visits to research centers or companies related to the subject studied.

Personalized attention

Methodologies	Description
Laboratory practises	Students will be guided to choose the right literature for the full or to make their own subjects. To help solve problems and concerns that students encounter in laboratories.
Master Session	Provide tools they need to solve for themselves the question to appear after they have studied the topics dealt with in the opening sessions in the tutoring hours practices. In, indicate the appropriate literature so that they can resolve the question doubts.

Assessment

Description	Qualification	Training and Learning Results
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Master Session	(*)Exame escrito.- O alumnado debe responder a diferentes cuestións para demostrar os seus coñecementos sobre conceptos teóricos e cuestións prácticas da materia. Constará de preguntas de reposta curta e outras de reposta longa. Exposición por parte do alumnado dun dos temas do programa.	70	B1 B11	C34	D6 D20
Laboratory practises	(*)Avaliación continua das actividades desenvolvidas nas prácticas, así como da memoria ou entrega de exemplares de patoloxía de plantas e/ou un exame práctico que o alumnado deben realizar ao final do curso.	30	B11 B16	C34	D6 D20

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

AGRIOS, G.N., **Plant pathology**., 5ª Ed. Elsevier Academic Press,

ANDRÉS, M. FE DE, **Patógenos de plantas descritos en España**., Ministerio de Agricultura, Pesca y Alimentación,,

BARBAGALLO S., CRAVEDI P., PASQUELINI E. & PATTI I., **Pulgonos de los principales cultivos frutales**, Bayer/Mundi-Prensa,

CARRERO, J.M., **Lucha integrada contra las plagas agrícolas y forestales**, Mundi-Prensa.,

DAJOZ R., **Entomología forestal. Los insectos y el bosque: papel y diversidad de los insectos en el medio foresta**, Mundi-Prensa,

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LIÑÁN , C., **Vademecum de productos fitosanitarios y nutricionales**., Mundi Prensa,

Lombardero M.J. & Fernández de Ana F.J., **A Procesionaria do piñeiro en Galicia**., Consellería de Agricultura, Gandería e Montes,. Xunta de Galicia,

MALLOY O.C. & MURRAY T.D. (eds), **Encyclopedia of plant pathology**, New York, [etc.] : John Wiley,

Mansilla J.P., Pérez R., Pintos C., Salinero C. & Iglesias C., **Plagas y enfermedades del castaño en Galicia**, 2ª ed. Xunta de Galicia. Consellería de Agricultura, Ganadería e Política Agroalimentaria.,

MUÑOZ LÓPEZ C., PÉREZ FORTÉA V., COBOS SUÁREZ P., HERNÁNDEZ ALONSO R., SÁNCHEZ PEÑA G., **Sanidad forestal: guía en imágenes de plagas, enfermedades y otros agentes presentes en los montes**, Mundi-Prensa 3ª ed,

ROMANYK, N. & CADAHIA, D., **Plagas de insectos en las masas forestales**, Mundi-Prensa,

TAINTER, F.H. & BAKER, F.A, **Principles of forest pathology**, John Wiley & Sons,

TORRES JUAN, J., **Patología Forestal.Principales enfermedades de nuestras especies forestales**, Mundi Prensa.,

VILLALVA, S., **Plagas y enfermedades de jardines**, 2ª Ed. Mundi-Prensa,

<http://www.infoagro.com/agrovademecum/>, **Agrovademecum**,

ZÚBRIK M., KUNCA A. & CSÓKA G. (Eds)., **Insects and Diseases damaging trees and shrubs of Europe**, NAP Editions,

Robert N. Trigiano, Mark T. Windham, Alan S. Windham (Eds.), **Plant pathology concepts and laboratory exercises**, Boca Raton (Florida): CRC,,

Remacha-Gete, A., **Agentes Bioticos que atacan la madera. Ciclo biológico, tipo de ataque y control del mismo**, AITiM. Madrid,

Recommendations

Subjects that it is recommended to have taken before

Biology: Plant Biology/P03G370V01201

Botany/P03G370V01303

Forestry Ecology/P03G370V01402

Forestry/P03G370V01401

Forest entomology and Zoology/P03G370V01305

IDENTIFYING DATA				
Forest and pasture management				
Subject	Forest and pasture management			
Code	P03G370V01704			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language				
Department				
Coordinator	Martínez Chamorro, Enrique José			
Lecturers	Martínez Chamorro, Enrique José			
E-mail	enrique.martinez.chamorro@gmail.com			
Web	http://http://webs.uvigo.es/mchamorro/			
General description	(*)Coñecer as bases ecolóxicas que rexen o funcionamento natural dos diversos sistemas pastorais e silvopastorais. Analizar a estrutura, manexo e xestión dos devanditos sistemas silvopastorais			

Competencies	
Code	
B1	CG-01: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Biolóxicos.
B6	CG-06: Capacidade para identificar os diferentes elementos: elementos bióticos.
B7	CG-07: Capacidade para identificar os diferentes elementos: elementos físicos.
B8	CG-08: Capacidade para identificar os diferentes elementos: recursos naturais renovables susceptibles de protección, conservación e aproveitamento.
B14	CG-14: Capacidade para o uso das técnicas de protección do medio forestal.
B19	CG-19: Capacidade para aplicar as técnicas de xestión ambiental.
B22	CG-22: Capacidade para aplicar e desenvolver as técnicas selvícolas e de manexo de todo tipo de sistemas forestais, parques e áreas recreativas.
B23	CG-23: Capacidade para aplicar e desenvolver as técnicas de aproveitamento de produtos forestais madeirables e non madeirables.
B33	CG-33: Capacidade para caracterizar as propiedades anatómicas e tecnolóxicas das materias primas forestais non madeirables así como das tecnoloxías e industrias destas materias primas.
C8	(*)CE-08: Coñecemento das bases e fundamentos biolóxicos do ámbito vexetal na enxeñaría.
C12	(*)CE-12: Capacidade para coñecer, comprender e utilizar os principios de: ecoloxía forestal
C15	(*)CE-15: Capacidade para coñecer, comprender e utilizar os principios de: botánica forestal.
C17	(*)CE-17: Capacidade para coñecer, comprender e utilizar os principios de: silvicultura.
C27	(*)CE-27: Capacidade para coñecer, comprender e utilizar os principios de: prevención e loita contra incendios forestais.
C35	
D1	(*)CBI 1: Capacidade de análise e síntese.
D2	(*)CBI 2: Capacidade de organización e planificación.
D7	(*)CBI 7: Adquirir capacidade na toma de decisións.
D10	(*)CBP 3: Recoñecer a diversidade e a multiculturalidade.

Learning outcomes			
Expected results from this subject	Training and Learning Results		
(*)-Coñecer as bases ecoloxicas das principais gramíneas e leguminosas do norte peninsular	B1	C8	D1
- Funcionamento natural dos diversos sistemas pastorais e silvopastorais	B6	C12	D2
- Manexo e xestión dos devanditos sistemas silvopastorais	B7	C15	D7
	B8	C17	D10
	B14	C27	
	B19	C35	
	B22		
	B23		
	B33		
New			

Contents
Topic

INTRODUCTION TO PASTORING SYSTEMS.
CONDITIONING AND IMPROVEMENT OF PASTURES

SUBJECT 1: General silvipastoral concepts. Basic pastoral management.

SUBJECT 2: The vegetal component of the grazing system. Pastoral classification systems

SUBJECT 3: Packaging and improvement of pastures. I Rozas. The burning. Enclosures.

SUBJECT 4: Packaging and improved pastures II: Limestone amendments. Fertilization. Irrigation and drainage.

PASTURE USE. PASCICOLOGICAL SPECIES

SUBJECT 5: Basic concepts: grazing. Segá. Nutritional value: Quantity. Bromatológico value and palatability.

SUBJECT 6: Management of grazing systems and livestock. The quantification of production and storage

SUBJECT 7: Control of livestock density. Grazing and control of plant fuels. Masses of trees and pastures. Ecological effects.

SUBJECT 8: Classification of silvipastoral systems.

SUBJECT 9: Main pasture species.

THEME OF LABORATORY PRACTICES

SUBJECT 1P: recognition of plant species of the main genera of grasses and legumes of pastoral interest.

SUBJECT 2P: Description of species of pastoral interest using transparencies and slides.

SUBJECT 3P: Classification of plant species with taxonomic keys.

Planning

	Class hours	Hours outside the classroom	Total hours
Classroom work	25	10	35
Outdoor study / field practices	8	8	16
Laboratory practises	21	10	31
Multiple choice tests	3	0	3
Troubleshooting and / or exercises	2	0	2
Jobs and projects	10	0	10

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

Methodologies

	Description
Classroom work	1. Formulation and resolution of exercises on real situations. 2. Simulation of management over the territory. To make a herbarium with the main purpose of the herbarium is to serve to study the main grasses and legumes of our environment
Outdoor study / field practices	Collect and identify grasses and legumes.
Laboratory practises	Identify Grasses and legumes of silvipastoral interest

Personalized attention

Methodologies	Description
Laboratory practises	
Classroom work	
Outdoor study / field practices	
Tests	Description
Multiple choice tests	
Jobs and projects	

Assessment

Description		Qualification	Training and Learning Results		
Classroom work	(*)(*) Confeción dun Herbario	10	B1	C8 C12 C15 C35	D1 D2 D7
Outdoor study / field practices	(*)(*) Recoñecemento e identificación en campo de especies de interese pascícola	0			
Laboratory practises	(*) (*) Recoñecemento de especies pascícolas	5	B6 B7 B8 B14 B19 B22 B23 B33	C12 C15 C17 C27 C35	D1 D7 D10
Multiple choice tests	(*)Recoñocer os coñecementos adquiridos	60	B1 B6 B7 B8 B14 B19 B22 B23 B33	C8 C12 C15 C17 C27 C35	
Jobs and projects	(*)Realizar proxectos e exercicios de xestión basados en datos reais	25	B1 B6 B7 B14 B19 B22 B23	C12 C15 C17 C27 C35	D1 D2 D7

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

SAN MIGUEL, A., **Pastizales Naturales Españoles,**

RIGUEIRO,A., **Pastoreo controlado en los bosques gallegos,**

SAN MIGUEL, A, **La dehesa Española,**

ETIENNE,M., **Western European Silvopastoral Systems,**

GONZALEZ HERNANDEZ,P, **Estudio de las formaciones arboladas y arbustivas como base para su aprovechamiento cinegético,** Tesis doctoral inédita,

RIGUEIRO,A, **La utilización del ganado en el monte arbolado gallego, un paso hacia el uso integral del monte,** En:Estudios sobre prevención y efectos ecológicos de los incendios forestales,61-78,

MONTOYA, J. M., **Pastoralismo Mediterráneo,**

SILVA,F.J, **Prácticas agroforestales en pinares y eucaliptales atlánticos,**

KNOWLES,R.L. & CUTLER,T.R, . **Integration of Forestry and Pastures in New Zealand,**

Recommendations

Subjects that continue the syllabus

Biology: Plant Biology/P03G370V01201

Forestry Ecology/P03G370V01402

Subjects that are recommended to be taken simultaneously

Forestry/P03G370V01401

Forest management/P03G370V01605

Subjects that it is recommended to have taken before

Botany/P03G370V01303

Edaphology/P03G370V01302

IDENTIFYING DATA				
Wood preservation and drying technology				
Subject	Wood preservation and drying technology			
Code	P03G370V01705			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language				
Department				
Coordinator	González Prieto, Óscar			
Lecturers	González Prieto, Óscar			
E-mail	oscargprieto@uvigo.es			
Web	http://www.forestales.uvigo.es			
General description	(*)Asignatura que trata las dos tecnologías básicas para el uso industrial de la madera			

Competencies	
Code	
B32	CG-32: Capacidade para caracterizar as propiedades anatómicas e tecnolóxicas das materias primas forestais madeirables así como das tecnoloxías e industrias destas materias primas.
C31	(*)CE-31: Coñecementos para o cálculo e deseño de instalacións de carpintería. Secado, descortizado e trituración da madeira.
D1	(*)CBI 1: Capacidade de análise e síntese.
D2	(*)CBI 2: Capacidade de organización e planificación.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.

Learning outcomes				
Expected results from this subject			Training and Learning Results	
(*)Conocimientos para el cálculo y diseño de instalaciones de secado y tratamiento d ela madera	B32	C31	D1	D2
			D6	
New				

Contents	
Topic	
Wood drying technology	Physical principles of drying Natural drying Artificial drying Phases of artificial drying Predecaderos Drying tunnels Drying Chambers Drying of wood by special methods Defects caused by drying Programming of drying processes Design of dryers
Technology of wood conservation Pathologies of wood	Natural wood durability and impregnability Types of wood use Protective products and application systems Protector application systems Treatments of wood different from the use of chemicals Wood treatment - sawmills, joinery and carpentry Technical report on pathology Constructive measures for the protection of wood Reinforcement of wooden structures

Planning			
	Class hours	Hours outside the classroom	Total hours
Master Session	28	80	108

Troubleshooting and / or exercises	8	18	26
Outdoor study / field practices	4	6	10
Laboratory practises	2	0	2
Introductory activities	1	0	1
Short answer tests	2	0	2
Troubleshooting and / or exercises	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
Master Session	Exposition of objectives and contents and relevance of the same within the set of competences of the subject
Troubleshooting and / or exercises	Type and oral presentation problem solving seminars
Outdoor study / field practices	Explanation "in situ" of industrial processes of drying and conservation of wood
Laboratory practises	Explanation of the handling of dryers
Introductory activities	Presentation of the objectives and development of the subject

Personalized attention

Methodologies	Description
Troubleshooting and / or exercises	
Laboratory practises	

Assessment

	Description	Qualification	Training and Learning Results		
Master Session	(*) Evaluación continua a través de la asistencia a las sesiones impartidas	20	B32	C31	D1
Troubleshooting and / or exercises	(*) Evaluación continua a través de la asistencia a las clases prácticas impartidas	10	B32	C31	D2 D6
Outdoor study / field practices	(*) Presentación de una memoria de las visitas realizadas	5	B32		D1 D2 D6
Short answer tests	(*)Evaluación de la prueba de evaluación sobre los contenidos teóricos de la asignatura	45	B32	C31	
Troubleshooting and / or exercises	(*)Evaluación de las pruebas de realización de ejercicios	20	B32	C31	D1 D2 D6

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

Recommendations

Subjects that continue the syllabus

Quality control and prevention of occupational hazards in the forestry industry/P03G370V01804

Subjects that are recommended to be taken simultaneously

Primary wood processing industries/P03G370V01706

Product development and innovation in the wood industry/P03G370V01708

Industrial organisation and processes in the wood industry/P03G370V01707

Subjects that it is recommended to have taken before

Wood technology/P03G370V01606

IDENTIFYING DATA				
Primary wood processing industries				
Subject	Primary wood processing industries			
Code	P03G370V01706			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language				
Department				
Coordinator	Bartolome Mier, Javier			
Lecturers	Bartolome Mier, Javier			
E-mail	jbartolome@uvigo.es			
Web	http://www.forestaes.uvigo.es			
General description	*Asignatura In which they study the technologies of manufacture of the basic products of forest origin: wood sawed and boards			

Competencies	
Code	
B8	CG-08: Capacidade para identificar os diferentes elementos: recursos naturais renovables susceptibles de protección, conservación e aproveitamento.
B23	CG-23: Capacidade para aplicar e desenvolver as técnicas de aproveitamento de produtos forestais madeirables e non madeirables.
B32	CG-32: Capacidade para caracterizar as propiedades anatómicas e tecnolóxicas das materias primas forestais madeirables así como das tecnoloxías e industrias destas materias primas.
B33	CG-33: Capacidade para caracterizar as propiedades anatómicas e tecnolóxicas das materias primas forestais non madeirables así como das tecnoloxías e industrias destas materias primas.
B34	CG-34: Capacidade de organización e planificación de empresas e outras institucións, con coñecemento das disposicións lexislativas que lles afectan e dos fundamentos do marketing e comercialización de produtos forestais.
C29	(*)CE-29: Capacidade para coñecer, comprender e utilizar os principios dos procesos de primeira transformación da madeira e os principios de: materias primas forestais non madeireiras; procesos industriais de produtos non madeireiros: cortiza, resina, aceites esenciais.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.
D19	(*)CBS 7: Motivación pola calidade.
D20	(*)CBS 8: Sensibilidade cara a temas ambientais.

Learning outcomes			
Expected results from this subject		Training and Learning Results	
Capacity to know, comprise and use the basic principles of the processes of first transformation of the wood, including the *descortezado, *tritución and carpentry and other forest prime matters no *madereras		B8	C29
		B23	D6
		B32	D19
		B33	D20
		B34	
New			

Contents	
Topic	
Introduction to the subject.	Presentation of the sector of first transformation of the wood in Galicia, Spain and Europe
Technology of the sawed of the wood	Wooden section in roll Section of court of the trunk Section of manipulation of the wood sawed Machinery of sawed Systems of sawed of the wood Lines of processed
The cut of the wood	Characteristics of the tool Preparation and conservation of tools of court Parameters of court Definition of the tool of court
Manufacture of wooden sheet to the flat	Definition and use of the wooden sheet to the flat Process of manufacture of the wooden sheet to the flat

Manufacture of boards plywoods	Definition, properties and types of board plywood Process of manufacture of the board plywood
Manufacture of boards of particles and wooden fibres	Boards of particles. Properties, uses and process of manufacture Boards of hard fibre. Properties, uses and process of manufacture Boards of fibre of half density. Properties, uses and process of manufacture
Properties and employment of the main wooden species of industrial use	Physical characteristics, mechanical and applications of the main wooden species of conifers, leafy and tropical

Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	34	87	121
Troubleshooting and / or exercises	5	13	18
Outdoor study / field practices	4	2	6
Introductory activities	1	0	1
Short answer tests	1	0	1
Troubleshooting and / or exercises	1	0	1
Reports / memories of practice	0	2	2

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

Methodologies

	Description
Master Session	Exhibition of aims and contents and importance of the same inside the group of the competitions of the subject.
Troubleshooting and / or exercises	Seminars of resolution of problems type and oral presentation
Outdoor study / field practices	Explanation "in situ" of industrial processes in factories of first transformation of the wood
Introductory activities	Exhibition of the aims and development of the subject.

Personalized attention

Assessment

	Description	Qualification	Training and Learning Results		
Master Session	Continuous evaluation through the assistance to the classes of classroom	7	B8 B23 B32 B33 B34	C29	
Troubleshooting and / or exercises	Continuous evaluation through the assistance to the classes of resolution of problems	3	B8 B23 B32 B33 B34	C29	D6
Outdoor study / field practices	Presentation of a memory of the visits realised	10	B8 B23 B32 B33	C29	D6 D19 D20
Introductory activities		0			
Short answer tests	Evaluation of the theoretical knowledges through proofs of short answer	60	B8 B23 B32 B33 B34	C29	
Troubleshooting and / or exercises	Evaluation of the knowledges of the student, through proof written, for the resolution of typical problems of the industry of first transformation of the wood	20	B8 B23	C29	D6
Reports / memories of practice		0			

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

Recommendations

Subjects that continue the syllabus

Quality control and prevention of occupational hazards in the forestry industry/P03G370V01804

Subjects that are recommended to be taken simultaneously

Product development and innovation in the wood industry/P03G370V01708

Industrial organisation and processes in the wood industry/P03G370V01707

Wood preservation and drying technology/P03G370V01705

Subjects that it is recommended to have taken before

Wood technology/P03G370V01606

IDENTIFYING DATA**Industrial organisation and processes in the wood industry**

Subject	Industrial organisation and processes in the wood industry			
Code	P03G370V01707			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language	Spanish			
Department				
Coordinator	González Prieto, Óscar			
Lecturers	García-Pintos Escuder, Adela González Prieto, Óscar			
E-mail	oscargprieto@uvigo.es			
Web	http://www.forestales.uvigo.es			
General description	(*)Materia que trata sobre los procesos industriales de transformación de la madera, especialmente los que se llevan a cabo en la fabricación de los productos finales, así como las técnicas de gestión y mejora continua de la producción.			

Competencies

Code	
A1	(*)Que os estudantes posúan e comprendan coñecementos que aporten unha base ou oportunidade de ser orixinal no desenvolvemento e / ou aplicación de ideas, a miúdo nun contexto de investigación
A2	Que los estudiantes sepan aplicar conocimientos adquiridos y su capacidad de resolución de problemas en entornos nuevos o poco conocidos dentro de contextos más amplios (o multidisciplinares) relacionados con su área de estudio
B32	CG-32: Capacidade para caracterizar as propiedades anatómicas e tecnolóxicas das materias primas forestais madeirables así como das tecnoloxías e industrias destas materias primas.
B33	CG-33: Capacidade para caracterizar as propiedades anatómicas e tecnolóxicas das materias primas forestais non madeirables así como das tecnoloxías e industrias destas materias primas.
B34	CG-34: Capacidade de organización e planificación de empresas e outras institucións, con coñecemento das disposicións lexislativas que lles afectan e dos fundamentos do marketing e comercialización de produtos forestais.
B42	CG-42: Capacidade para entender, interpretar e adoptar os avances científicos no campo forestal, para desenvolver e transferir tecnoloxía e para traballar nun medio multilingüe e multidisciplinar.
C30	(*)CE-30: Capacidade para coñecer, comprender e utilizar os principios de: coñecemento dos principios básicos dos procesos de segunda transformación da madeira.
C31	(*)CE-31: Coñecementos para o cálculo e deseño de instalacións de carpintería. Secado, descortizado e trituración da madeira.
D1	(*)CBI 1: Capacidade de análise e síntese.
D2	(*)CBI 2: Capacidade de organización e planificación.
D13	(*)CBS 1: Aprendizaxe autónoma.
D14	(*)CBS 2: Adaptación a novas situacións.
D19	(*)CBS 7: Motivación pola calidade.

Learning outcomes

Expected results from this subject	Training and Learning Results			
(*)Capacidad para conocer, comprender y utilizar los principios básicos de la organización industrial y los procesos de segunda transformación de la madera y del cálculo y diseño de instalaciones de carpintería y mueble	A1	B32	C30	D1
	A2	B33	C31	D2
		B34		D13
		B42		D14
				D19

Contents

Topic	
The sector of second transformation of the wood	The carpentry and furniture industry in: · Galicia · Spain · Europe

Industrial operations on wood and boards Mechanization of wood and boards	Adhesives and gluing techniques in the wood industry Application of edges on boards Application of decorative surfaces on boards Sanding practices in carpentry and furniture Finishing technology on wood and boards
Basic principles and production management tools	Basic concepts Tools for supply chain management, purchasing and inventory Mathematical tools and models for the optimization of production
Basic principles and tools for continuous improvement in the organization of industrial production	Lean management basics and production excellence Application of Lean management to the wood industry Other tools: JIT, six-sigma

Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	17	44	61
Tutored works	7	20	27
Outdoor study / field practices	8	10	18
Troubleshooting and / or exercises	11	30	41
Introductory activities	1	0	1
Short answer tests	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
Master Session	Structured exposition of objectives, theoretical contents and exemplifications of the subjects and sub-themes that form the program of the subject
Tutored works	Resolution of small practical exercises that accompany a theoretical explanation. Seminars of approach and resolution of type problems with oral presentation
Outdoor study / field practices	Explanation "in situ" of the organization and industrial processes in the carpentry and furniture industries
Troubleshooting and / or exercises	Active participation in the resolution of problems and / or exercises
Introductory activities	Introduction to the objectives and development of the subject

Personalized attention

Methodologies	Description
Tutored works	The tutoring hours will be indicated at the beginning of the course
Troubleshooting and / or exercises	The tutoring hours will be indicated at the beginning of the course

Assessment

	Description	Qualification	Training and Learning Results
Master Session	(*)Participación activa no debate que se expoña na aula sobre os conceptos teóricos	10	C30 C31
Tutored works	(*)Participación activa nos seminarios de resolución de exercicios e de casos/análises de situacións, con críticas construtivas ás resolucións doutros compañeiros e entrega en tempo e forma dos traballos encomendados	5	C30 C31
Outdoor study / field practices	(*)Presentación dunha memoria das visitas realizadas	5	C30 C31
Short answer tests	(*)Proba escrita sobre os contidos teóricos e prácticos da materia	80	C30 C31

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

Recommendations

Subjects that are recommended to be taken simultaneously

Primary wood processing industries/P03G370V01706

Product development and innovation in the wood industry/P03G370V01708

Subjects that it is recommended to have taken before

Wood technology/P03G370V01606

IDENTIFYING DATA				
Product development and innovation in the wood industry				
Subject	Product development and innovation in the wood industry			
Code	P03G370V01708			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	1st
Teaching language	Spanish Galician			
Department				
Coordinator	Bartolome Mier, Javier			
Lecturers	Bartolome Mier, Javier García-Pintos Escuder, Adela			
E-mail	jbartolome@uvigo.es			
Web	http://www.forestales.uvigo.es			
General description	Matter that treats on the industrial processes of transformation of the wood, especially those that carry out in the manufacture of the final products, as well as the technicians of management and continuous improvement of the production			

Competencies

Code	
C31	(*)CE-31: Coñecementos para o cálculo e deseño de instalacións de carpintería. Secado, descortizado e trituración da madeira.
D2	(*)CBI 2: Capacidade de organización e planificación.
D18	(*)CBS 6: Iniciativa e espírito emprendedor.
D19	(*)CBS 7: Motivación pola calidade.

Learning outcomes

Expected results from this subject	Training and Learning Results	
Knowledges for the calculation and design of installations of carpentry, dried, *descortizado and *trituración of the wood	C31	D2 D18 D19
The relation between competitions and results, and the weight of each competition inside the matter show in the pdf attach.		
http://forestales.uvigo.es/sites/default/files/38%20Innovacion.Pdf#*overlay-*context=is/*content/competitions-and-resulted-of-learning-by-matter		

Contents

Topic	
1.- Material technified wooden	1.1.Tables derived from wood 1.2 Laminated wood sections 1.3 Microlaminated wood (LVL) 1.4 Reconstituted wood with strips (PSL) 1.5 Wood reconstituted with chips (LSL) 1.6 Reconstituted wood with small chips (OSL) 1.7 Plastic Wood
2.- Wooden components	2.1 Fences and precercations 2.2 Flashing 2.3 Decorative moldings 2.4 Turned timber 2.5. Wood bent 2.6 Rolled profiles
3.- Hardware	3.1 Legs, feet and support elements- leveling. 3.2 joining and assembly elements. 3.3 Hinges. 3.4 Guiding systems. 3.5 Installation and assembly elements. 3.6 Locks and closures

4.-Coatings of boards and wooden singings	4.1 Coverings of edges. 4.1.1 Based on solid wood battens. 4.1.2 Based on wood veneers. 4.1.3 The base of PVC sheets. 4.1.4 Decorative paper base.
	4.2.- Coverings of boards. 4.2.1 Made of sheet metal. 4.2.2 A base of impregnated papers. 4.2.3 Laminates. 4.2.4 Lacquered.
5.- Finished in carpentry and pieces of furniture	5.1 Introduction. 5.2 Classification of finishes. 5.2.1 By the function of the varnish. 5.2.2 For the chemical composition of the varnish. 5.3 Components of a finish. 5.3.1 Solvents. 5.3.2 Resins. 5.3.3 Dyes and additives. 5.3.4 Loads. 5.4 Varnishes dried uv
6.- Wooden doors	6.1 Introduction. 6.2 Classification of the doors. 6.2.1 By his constitution. 6.2.2 By the appearance of his faces. 6.2.3 By the form of the singing. 6.2.4 By the appearance of the singing. 6.3 Measures and tolerances of a door. 6.4 Characteristics of the wood. 6.5 Doors in function of his constitution 6.5.1 Doors to the flat. 6.5.2 Doors of carpentry. 6.5.3 doors of carpentry in relief. 6.6 special Doors 6.6.1 Doors to resistant to the fire. 6.6.2 acoustic Doors. 6.6.3 Doors of security.
7.- Wooden windows	7.1 Introduction. 7.2 Elements that constitute a window. 7.2.1 Elements of the window recess. 7.2.2 Window elements. 7.3 Characteristics of a wooden window. 7.3.1 Air permeability. 7.3.2 Resistance to wind. 7.3.3 Water tightness. 7.3.4 Glazing.
8.- Wooden floors	8.1 Deckings 8.2 Pallets 8.3 Lamparquet 8.4 Multi-layer parquet 8.5 Panels 8.5.1 Inlaid parquet 8.5.2 Industrial Parquet 8.5.3 Panels of historical designs 8.5.4 Multilayer panels 8.6 Lingering 8.7 Recessed panel flooring 8.8 laminated floors 8.9 Plastic flooring (pwc)
9.- Wooden stairs	9.1 Introduction 9.2 Definitions 9.3 Typology of stairs 9.3.1 Structural Typology 9.3.2 Typology by path 9.4 Technical aspects in the design of a ladder
10.- Ergonomics and piece of furniture	10.1 General concepts 10.2 Scientific bases in ergonomics 10.3 Implications in furniture design of the sedentary stance. 10.4 Anthropometric tables.

11.- Modular pieces of furniture	11.1 General concepts 11.2 Modular furniture 11.3 Components of modular furniture 11.4 Exploded view of modular furniture
12.- Solid wood furniture	12.1 General concepts 12.2 Modular furniture 12.3 Components of modular furniture 12.4 Exploded view of modular furniture
13.- Attached furniture and others	13.1 General concepts 13.2 Modular furniture 13.3 Components of modular furniture 13.4 Exploded view of modular furniture
14.- Introduction to the innovation and new products	14.1 basic Concepts on innovation 14.2 The management of the innovation and the R&D 14.3 Types of innovation
15.- Technical of work in team and creativity	15.1 Creativity and processes 15.2 Technicians for the creation and management of innovation of products
16.- Phases of a project of development of new products	16.1 Phases of a project of development of new products

Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	23	70	93
Laboratory practises	4	6	10
Autonomous practices through ICT	6	10	16
Classroom work	11	18	29
Short answer tests	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
Master Session	Explanation of theoretical concepts and exemplifications
Laboratory practises	Activities of application of the knowledges to concrete situations and of acquisition of basic skills and procedural related with the matter object of study. It will develop in a special space with the suitable equipment
Autonomous practices through ICT	Resolution of practical cases of design of modular pieces of furniture
Classroom work	The student will realise a project of development of a new product so much in the classroom as of autonomous way under the guidelines and the supervision of the professor.

Personalized attention

Methodologies	Description
Classroom work	The tutorials will fix to principle of the semester.
Autonomous practices through ICT	The tutorials will fix to principle of the semester.

Assessment

	Description	Qualification	Training and Learning Results
Master Session	Assistance and active participation in the sessions *magistrales	10	C31
Laboratory practises	Activities of application of the knowledges to concrete situations and of acquisition of basic skills and *procedimentales related with the matter object of study.	5	C31 D2 D18 D19
Classroom work	The student will realise a project of development of a new product	50	C31 D2 D18 D19
Short answer tests	Proof written to final of course for the evaluation of the competitions purchased along the course	35	C31

Other comments on the Evaluation

Sources of information

Basic Bibliography**Complementary Bibliography**

Recommendations**Subjects that continue the syllabus**

Environmental management/P03G370V01608

Quality control and prevention of occupational hazards in the forestry industry/P03G370V01804

Subjects that are recommended to be taken simultaneously

Quality control and prevention of occupational hazards in the forestry industry/P03G370V01804

Subjects that it is recommended to have taken before

Basics of business economics/P03G370V01104

Wood technology/P03G370V01606

Wood preservation and drying technology/P03G370V01705

Other comments

The student has to give of high and keep a *ficha up to date in the telematic platform of support to the teaching (*FAITIC). They will have to request the high to the start of the course to access to the on-line contents of said matter, available in the web: <http://faitic.uvigo.es>, previous to the effective registration.

IDENTIFYING DATA				
Management of protected areas and biodiversity				
Subject	Management of protected areas and biodiversity			
Code	P03G370V01801			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	2nd
Teaching language				
Department				
Coordinator	Cordero Rivera, Adolfo			
Lecturers	Cordero Rivera, Adolfo Rivas Torres, Anaís			
E-mail	adolfo.cordero@uvigo.es			
Web	http://ecoevo.uvigo.es			
General description	(*)Introdución aos principios da Bioloxía da Conservación aplicados á Xestión de Espazos protexidos e Conservación da Biodiversidade			

Competencies

Code				
B1	CG-01: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Biolóxicos.			
B2	CG-02: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Físicos.			
B6	CG-06: Capacidade para identificar os diferentes elementos: elementos bióticos.			
B7	CG-07: Capacidade para identificar os diferentes elementos: elementos físicos.			
B8	CG-08: Capacidade para identificar os diferentes elementos: recursos naturais renovables susceptibles de protección, conservación e aproveitamento.			
B9	CG-09: Capacidade para analizar a estrutura e función ecolóxica dos sistemas e recursos forestais, incluíndo as paisaxes.			
B16	CG-16: Capacidade para o uso das técnicas de conservación da biodiversidade.			
B24	CG-24: Capacidade para resolver os problemas técnicos derivados da xestión dos espazos naturais.			
C12	(*)CE-12: Capacidade para coñecer, comprender e utilizar os principios de: ecoloxía forestal			
C36	(*)CE-36: Capacidade para resolver problemas técnicos derivados da xestión de espazos naturais. Conservación da biodiversidade.			
D1	(*)CBI 1: Capacidade de análise e síntese.			
D2	(*)CBI 2: Capacidade de organización e planificación.			
D5	(*)CBI 5: Capacidade de xestión da información.			
D7	(*)CBI 7: Adquirir capacidade na toma de decisións.			
D11	(*)CBP 4: Habilidades de razoamento crítico.			
D15	(*)CBS 3: Creatividade.			
D20	(*)CBS 8: Sensibilidade cara a temas ambientais.			

Learning outcomes

Expected results from this subject	Training and Learning Results		
(*)	B1	C12	D1
	B2	C36	D2
	B6		D5
	B7		D7
	B8		D11
	B9		D15
	B16		D20
	B24		
New			

Contents

Topic	
1. The science of conservation.	The origins and brief history of conservationist movements. Principles of conservation biology. Ecology and Environment. Importance of science in conservation.

2. Present the ecological values and functions of biodiversity.	Genetic diversity, and by ecosystem: the concept of biodiversity. Why should you keep the species? The intrinsic value of the species and their conservation status. The instrumental values and rarity of the species. The values of ecosystems.
3. Biodiversity and stability.	The concept of stability. The diversity-stability debate (a history of controversy, current studies, compartmentalization, diversity and global change, implications for conservation biology). Recoil.
4. Ecological principles in the exploitation of natural resources.	Optimum performance concept. Principles for the exploitation of resources. Genetic changes in exploited populations. The exploitation of forests. Forest certification (FSC, PEFC).
5. Extinction	Number of species that inhabit the planet. The causes of the rarity of the species. IUCN classification. Estimation of extinction rate. Processes and causes of extinction. Degradation and destruction of habitats. Metapopulation dynamic. Analysis of viability of populations (PVA).
6. Management of species and populations.	Addresses of the units. In situ and ex situ conservation. Scarcity of resources. Control of threats. Transfers and artificial breeding. Role of zoos, botanical gardens and museums. Importance of ethology in conservation. Case study: the example of the black ferret pin.
7. E-mail management and restoration of ecosystems	. Principles of ecosystem management. Modified ecosystems (logging, agricultural ecosystems, aquatic ecosystems). Restoration of ecosystems.
8. Social factors in conservation.	Description of the values. Qualification priorities. Cultural changes. Environmental education. Galician strategy of environmental education.
9. The economics of conservation.	Economic valuation of biodiversity (types of sustainability, decision models in the ecological economy, the value of biodiversity). Cost of maintenance (method of cost of the trips, the method of revealed preferences, an economic and ecological perspective of market). The tragedy of communal property.
10. Political action and conservation.	International organizations (IUCN MAB program). Government agencies: The Spanish strategy for sustainable development. Spanish strategy for the conservation of biodiversity. Non-governmental organizations (NGOs). Companies and individuals. Scientific research, policy and conservation. Ecologism as a political ideology.
11. Reserves and protected parks.	Objectives of the creation of reserves (the problem of fragmentation). Representation of biodiversity. The main features of design reservations: size, dynamic context, spatial, connectivity, buffer zones. Protected natural areas of Galicia.
12. Conservation legislation	Biodiversity Agreements (Berne, Ramsar, Washington (CITES), Bonn Biodiversity (Rio de Janeiro) European legislation (Birds Directive, Habitats Directive) State legislation (Law 42/2007 on Natural Heritage, Decree 139 / 2011 catalog species in danger Decree 1628/2011 Catalog of invasive species) Legislation of Galicia: .. of Galician law of conservation of nature.
13. Management plans for endangered species.	Guidelines, objectives and feasibility. Examples: the management plan for the European turtle (Emys orbicularis) in Galicia; Plan of control of liberal populations (Odonata) of European interest; Reproductive biology and Camariña management (Corema album) in the Cíes Islands.
Practice 1. Design of Reservations: Testing the species-area relationship.	(*)
Practice 2. Taxonomic principles and characteristics of communities. Its use in the decision-making process on conservation.	(*)
Practice 3. Contingent assessment: Survey on social attitudes against conservation.	(*)
Practice 4. Analysis of the viability of populations using the vortex program.	(*)
Practice 5. Field output. Visit to the Center of Zoogenética Resources of Galicia.	Study of two systems of conservation of xermoplasma of autochthonous cattle breeds.
Practice 6. Field Output. Visit to the Natural Park of Fragas do Eume.	Contact with the actual treatment of the protease area, with its specific characteristics and problems.
Practice 7. Field output. Visit to the National Park of the Atlantic Islands of Galicia.	Given the peculiarities of the Park, with its insularity, the visit will be to the reception center of visitors in Vigo, if the climatic and climatic conditions so advise.

Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	30	52.5	82.5
Outdoor study / field practices	11	16.5	27.5

Classroom work	5	10	15
Practice in computer rooms	4	4	8
Short answer tests	2	0	2
Jobs and projects	5	10	15

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

Methodologies	
	Description
Master Session	Presentation by the professor of the most important concepts of the subject
Outdoor study / field practices	Understanding key concepts through study outings.
Classroom work	work and exposure practical classroom analysis methodologies.
Practice in computer rooms	study key concepts through computer simulations.

Personalized attention	
Tests	Description
Jobs and projects	A sand county almanac, Aldo Leopold. Monographic work on the book

Assessment		Qualification	Training and Learning Results		
	Description				
Master Session	(*)Avaliarase mediante exames de resposta curta.	65	B1 B2 B6 B7 B8 B9 B16 B24	C12	D1 D11
Outdoor study / field practices	(*)Avaliaranse no exame da materia mediante preguntas específicas.	5	B6 B7 B8 B9 B16 B24	C12	D1 D11
Classroom work	(*)Avaliaranse no exame da materia mediante preguntas específicas ou ben mediante traballos escritos.	10	B6 B7 B8 B9 B16 B24	C12 C36	D1 D11 D20
Practice in computer rooms	(*)Avaliaranse no exame da materia mediante preguntas específicas ou ben mediante traballos.	10	B6 B7 B8 B9 B16	C12	D1 D5 D11 D15 D20
Short answer tests	(*)Forman parte do exame escrito da materia	0			
Jobs and projects	(*)Entrega dun traballo monográfico sobre o libro "A sand county almanac", de Aldo Leopold. O traballo debe ser entregado un mes antes da data do exame.	10			

Other comments on the Evaluation

Sources of information
Basic Bibliography
Leopold, Aldo, A sand county almanac (versión española: Una ética de la tierra) , Oxford University Press, 1949
Complementary Bibliography
Primack, R.B. & J. Ros, Introducción a la Biología de la Conservación , Ariel, 2002
Cordero Rivera, A. (Editor), Proxecto Galicia, Ecoloxía. Volumen 45. Conservación I. , Hércules de Ediciones, 2005
Hunter, M.L., Fundamentals of Conservation Biology , Blackwell Science, 2002
Sutherland, W.J., The Conservation Handbook: Research, Management and Policy , Blackwell Science, 2000
Shafer, C. L., Nature Reserves , Smithsonian Institution Press, 1990
James P. Gibbs, Malcolm L. Hunter, Jr., Eleanor J. Sterling, Problem-solving in conservation biology and wildlife management: exercises for class, field, and laboratory , 2, Blackwell Science, 2008

Recommendations

Subjects that it is recommended to have taken before

Forestry Ecology/P03G370V01402

IDENTIFYING DATA				
Forest Fires				
Subject	Forest Fires			
Code	P03G370V01802			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	2nd
Teaching language	Galician			
Department				
Coordinator	Fernández Alonso, José María			
Lecturers	Fernández Alonso, José María			
E-mail	txema182@gmail.com			
Web				
General description	Technicians of prevention *and extinction of forest *fires			

Competencies	
Code	
B8	CG-08: Capacidade para identificar os diferentes elementos: recursos naturais renovables susceptibles de protección, conservación e aproveitamento.
B12	CG-12: Coñecemento dos procesos de degradación que afecten aos sistemas e recursos forestais: incendios.
B15	CG-15: Capacidade para o uso das técnicas de restauración hidrolóxico forestal.
C27	(*)CE-27: Capacidade para coñecer, comprender e utilizar os principios de: prevención e loita contra incendios forestais.
D5	(*)CBI 5: Capacidade de xestión da información.
D6	(*)CBI 6: Adquirir capacidade de resolución de problemas.
D7	(*)CBI 7: Adquirir capacidade na toma de decisións.
D11	(*)CBP 4: Habilidades de razoamento crítico.
D13	(*)CBS 1: Aprendizaxe autónoma.

Learning outcomes		
Expected results from this subject	Training and Learning Results	
Identify the concept of forest fire, *his **características *general *and the problem of wool *causality the different territorial *levels	B8 B12 B15	D5 D6 D7 D11 D13
Lana relation between competitions *and results, *and the weight of each competition inside wool matter show * in him *pdf *attach.		
http://forestales.uvigo.es/sites/default/files/40%20Fires.*Pdf#**overlay**context=are/**content/competitions-*and-resulted-of-*learning-by-matter		

Contents	
Topic	
1. Forest fires.	Definition. General characteristics. Causality. Socioeconomic implications. Statistics. Repercussion throughout the world, the Mediterranean and Spain.
2. Flammability and combustibility.	Heat transfer. Phases of combustion in case of fire. The temperature during forest fires.
3 forest fuels.	Typology. The physical-chemical behavior with influence in the world. Models of fuel.
4 Influence of meteorological and topographic factors on the spread of fire.	Relative humidity and temperature. Precipitation. Winds. Heat inversion. Electric storms. Atmospheric stability.
5 Variables of basic behavior of forest fires.	Empirical physical and empirical models of propagation. Prediction systems. The dynamics of high intensity fires. The factors they cause. Fires of glasses. Fires of points.
6 Fire Prevention.	Analysis of the causes. Determining sites. The educational legislation. Coercive work. The rates of fire hazard. Spanish system. Systems from America, Canada and Australia.
7 Preventive forestry. Activities related to forest fires.	Influence of problems in the planning of forest fires. Firewall and firewall areas. Preventive forestry techniques. Amendments arborea vegetation. Scrub fuel control techniques. The prescribed burning schedule. Ignition techniques. Execution. Evaluation.

8 Organization of a permanent fire protection structure.	Operations. Extinction techniques. Basic principles. Lines. Lineas control lines. Direct attack The indirect attack.
9. Hand tools and equipment for security personnel.	Means of aerial combat in it fires. Characteristics general types, advantages and use limitaci3ns.El auga.Retardantes: types, effects and applications.
10 Influence of forest fires on ecosystems.	Adaptations of vegetation fires. Fire regimes. Post-secondary world. Impact of fire on the ground. Erosive effects of forest fires. Change the fire hydrologicos.Repelencia after the infiltration of water. Changes in the PTO.
11 Restoration of burned areas.	Actions to control erosion. Revegetaci3n: Techniques, spices, advantages and limitations

Planning

	Class hours	Hours outside the classroom	Total hours
Laboratory practises	10	20	30
Master Session	30	30	60
Practice in computer rooms	6	6	12
Autonomous troubleshooting and / or exercises	2	20	22
Outdoor study / field practices	6	6	12
Short answer tests	1	3	4
Troubleshooting and / or exercises	5	5	10

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

Methodologies

	Description
Laboratory practises	Resolution of practical cases by students with educational orientation and the use of specific laboratory of materials and equipment
Master Session	Exposition of the content of the subject, the theoretical bases and / or guidelines for the realization of A work, the exercise or project to be developed by students
Practice in computer rooms	Practices in computer classrooms Present practice in computer rooms to solve practical assumptions of students with the orientation and use of specific programs and resources of the teaching team
Autonomous troubleshooting and / or exercises	Problem solving and / or autonomous problem solving exercises that students must solve in a personalized way outside the class throughout the course
Outdoor study / field practices	Practical exercise management tools and fire fighting equipment

All competences are type A, which they learn in all methodologies

Personalized attention

Methodologies	Description
Laboratory practises	
Master Session	
Practice in computer rooms	
Outdoor study / field practices	
Autonomous troubleshooting and / or exercises	
Tests	Description
Short answer tests	
Troubleshooting and / or exercises	

Assessment

	Description	Qualification	Training and Learning Results
Autonomous troubleshooting and / or exercises	*Approach of problems that he student has to resolve of personalised form *out of class to *the wide of him course	30	B8 C27 D6 B12 D7 B15 D13

Short answer tests	*Approach of questions of *brief answer that he student has to resolve in class in him act of evaluation	21	B8 B12 B15	C27	D11
Troubleshooting and / or exercises	*Approach of problems that he student has to resolve in class in him act of evaluation	49	B8 B12 B15	C27	D5 D6 D11 D13

Other comments on the Evaluation

All woos competitions are of type To *and evaluate * of conjoint *form **segun *the *procedures described previously.

Sources of information

Basic Bibliography

Juli G. Pausas, **¿QUÉ SABEMOS DE...? Incendios forestales**, CSIC e Catarata, 2012

Vega, J.A. e outros, **Acciones urgentes contra la erosión en áreas forestales quemadas. Guía para su planificación en Galicia. Xunta de Galicia**, 1, FuegoRed, 2013

Complementary Bibliography

Arellano, S. e outros, **Foto-Guía de combustibles forestales de Galicia. Versión I**, 1, Andavira, 2016

Recommendations

Subjects that it is recommended to have taken before

Physics: Physics I/P03G370V01102

Physics: Physics II/P03G370V01202

Edaphology/P03G370V01302

Forestry/P03G370V01401

IDENTIFYING DATA				
Cellulose, pulp and paper				
Subject	Cellulose, pulp and paper			
Code	P03G370V01803			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	2nd
Teaching language				
Department				
Coordinator	Lorenzo Fouz, David			
Lecturers	Lorenzo Fouz, David			
E-mail	davidlorenzofouz@gmail.com			
Web				
General description				

Competencies	
Code	
B3	CG-03: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Químicos.
B8	CG-08: Capacidade para identificar os diferentes elementos: recursos naturais renovables susceptibles de protección, conservación e aproveitamento.
B23	CG-23: Capacidade para aplicar e desenvolver as técnicas de aproveitamento de produtos forestais madeirables e non madeirables.
B32	CG-32: Capacidade para caracterizar as propiedades anatómicas e tecnolóxicas das materias primas forestais madeirables así como das tecnoloxías e industrias destas materias primas.
C37	(*)CE-37: Coñecementos dos principios básicos da química da celulósica e papeleira e dos seus procesos industriais.
D1	(*)CBI 1: Capacidade de análise e síntese.
D3	(*)CBI 3: Capacidade de comunicación oral e escrita tanto na lingua vernácula como en linguas estranxeiras.
D13	(*)CBS 1: Aprendizaxe autónoma.

Learning outcomes			
Expected results from this subject	Training and Learning Results		
(*)CE-37: Capacidad para conocer, comprender y utilizar los principios de los procesos industriales de fabricación de celulosa y papel	B3 B8 B23 B32	C37	D1 D3 D13
New			

Contents	
Topic	
1. Pulp, paper and cardboard	Requirements and sources of paper fibers. Chemical composition of wood. Behavior of cellulosic fibers
2. Characteristics of the wood	Effect of the morphology of the fibers on the properties of the paper. Identification of wood species
3. The resources of the wood.	Measurement of wood for pulp. Preparation of wood for the manufacture of cellulose. Quality control of the chips.
4. Processes for obtaining pastas	Mechanical, chemical, semi-chemical and dissolving pastes. Comparison of folders and applications thereof.
5. Sulphate process	Definition of terms and description of the kraft process. System of recovery of the chemical products. Chemistry of the kraft process and variables affecting sulfate cooking. Control Parameters.
6. Cooking equipment	Discontinuous and continuous digesters. Extended delineation. Biorefinerías
7. Processing of the pulp	Deflection, knot removal, washing, sorting of pastes, thickening, pumping, storing, mixing, drying, cutting and stacking.
8. Recovery of cooking liquors	Evaporation. Recovery boiler. Caustification. Calcination. Recovery of by-products.
9. Bleaching of folders	ECF and TCF sequences. Stages of bleaching. Circuit closure
10. Economy and operating strategy of a pasta factory	Basic economic considerations. Costs control

11. Preparation of pulp for paper production	Disintegration, refining, measurement and mixing of the composition
12. Use of secondary fibers	Disintegration of the paperboard and deinking
13. Non-fibrous additives in paper manufacturing	Non-fibrous additives applications: bonding, internal strength, wet strength resins, fillers, chemical dyes and pitch control.
14. Paper making	Wet and dry part
15. Reduction of contamination	Aqueous and atmospheric contamination in the pulp and paper industry
P1.	Optical microscopy Observation of hardwood fibers and conifers at different levels of refining. Observation of vessels, tracheids and parenchyma cells of different types of pastes.
P2.	Disintegration of pastes. Refining PFI. Schopper Grade Riegler UNE 57026, ISO 5263; UNE 57125, ISO 5264/2; UNE 57025, ISO 5267/1 Send Send Send
P3.	l refine on Valley stack. Formation of sheets UNE 57017, ISO 5264/1; UNE 57042, ISO 5269/1
P4.	Physical characteristics of the test sheets Gramaje (UNE 57104, ISO 5360); Thickness (UNE 57004, ISO 5270); Tear index (UNE 57033, ISO 1974); Burst index (UNE 57058, ISO 2758); Resistance to air passage. Gurley Method (UNE 57065, ISO 3687)
P5.	Case studies Chip quality; Specific consumption of wood; Factor H and G; Solids in black liquors

Planning

	Class hours	Hours outside the classroom	Total hours
Laboratory practises	17	15	32
Outdoor study / field practices	4	10	14
Master Session	25	54	79
Short answer tests	2	0	2
Practical tests, real task execution and / or simulated.	1	10	11
Case studies / analysis of situations	1	5	6
Troubleshooting and / or exercises	1	5	6

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

Methodologies

	Description
Laboratory practises	Carrying out the practical tests according to ISO and UNE standards for pulp, paper and cardboard
Outdoor study / field practices	Eucalyptus kraft pulp mill. Bleaching TCF. ENCE Business Group
Master Session	Exposure of the contents of the subject supported in PowerPoint presentations and videos

Personalized attention

Tests	Description
Case studies / analysis of situations	

Assessment

	Description	Qualification	Training and Learning Results	
Short answer tests	(*)Bloques de definiciones (20) y bloques de respuestas conceptuales (10)	70	B3 B8 B23 B32	C37
Practical tests, real task execution and / or simulated.	(*)Presentación en clase del trabajo asignado	10	B3 B8 B23 B32	C37 D13
Troubleshooting and / or exercises	(*)Dos ejercicios prácticos	20	B8 B23 B32	D13

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

1. Smook G. A, **Handbook for pulp and paper technologists**, 2002,
2. Herbert Sixta, **Handbook of Pulp. 2 Volume**, 2006,
3. Hans Ulrich Suess, **Pulp Bleaching Today**, 2010,
4. Pratima Bajpai, **Environmentally Friendly Production of Pulp and Paper**, 2010,
5. Varios Autores, **5. Papermaking Science and Technology (19 vol.)**, 1999,

Recommendations

Subjects that are recommended to be taken simultaneously

Quality control and prevention of occupational hazards in the forestry industry/P03G370V01804

Subjects that it is recommended to have taken before

Chemistry: Chemistry/P03G370V01204

Forest exploitation/P03G370V01601

Primary wood processing industries/P03G370V01706

IDENTIFYING DATA**Quality control and prevention of occupational hazards in the forestry industry**

Subject	Quality control and prevention of occupational hazards in the forestry industry			
Code	P03G370V01804			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	2nd
Teaching language				
Department				
Coordinator	Bartolome Mier, Javier			
Lecturers	Bartolome Mier, Javier			
E-mail	jbartolome@uvigo.es			
Web	http://www.forestales.uvigo.es			
General description	Introduction to the systems of guarantee of the quality and of management of labour risks. Methods of continuous improvement			

Competencies

Code	
C39	(*)CE-39: Capacidade para coñecer, comprender e utilizar os principios de: control de calidade na industria forestal.
C40	(*)CE-40: Capacidade para coñecer, comprender e utilizar os principios de: seguridade e hixiene industrial.
D19	(*)CBS 7: Motivación pola calidade.

Learning outcomes

Expected results from this subject	Training and Learning Results	
Capacity to know, comprise and use the principles of: Control of quality and prevention of labour risks in the forest industry.	C39 C40	D19
New		

Contents

Topic	
1.- Forest industry and quality	1.1. General concepts
2.- General concepts of the quality	2.1 Definition of quality 2.2. Definition of Systems of quality 2.3.-Evolution of the systems of quality 2.4. Profits of the quality 2.5. Organisational model of the quality 2.6. Commitment of the direction 2.7. Human team
3.- Norms ISO 9001: 2008 and ISO 9004: 2009	3.1 Aims 3.2. Scope 3.3. Approach 3.4. Points of norm
4.- As implant a system of quality	4.1. Phases of the implantation of a system of management 4. 2. Process of the certification 4.3. Orientation to the management by processes 4.4. Management of the improvement of a process
5.- Audits of Quality	5.1. Definition of audit 5.2. Types of audit 5.3. Process of audit 5.4.Team of audit 5.5. Preparation of the audit 5.6. Development of the audit. 5.7. Report of audit
6.- The marked CE of wooden products for employment in the construction	6.1. Realisation of the marked CE of products. Phases of the process

7.- Foundation of the technicians of improvement of the conditions of work.	7.1.- Technical of prevention of labour risks. 7.2.- Norma and signaling in security. 7.3.- Collective and individual protection 7.4.- Plans of emergency and autoprotection. 7.5.- Toxic and dangerous waste 7.6.- Installations against forestry fire.
8.- Security in the work	8.1.- Accidents of Work 8.2.- Analysis and general evaluation of the risk of accident.
9.- Industrial hygiene.	9.1.- Concepts and aims. 9.2.- Normative legal specific. 9.3.- Physical agents; noise, vibrations 9.4.- Biological agents 9.5.- Medicine of the work: Pathologies of labour origin. 9.6.- first aid And first helps. 9.7.- Ergonomics and psicoscology

Planning

	Class hours	Hours outside the classroom	Total hours
Case studies / analysis of situations	6	10	16
Outdoor study / field practices	4	2	6
Master Session	34	72	106
Short answer tests	2	20	22

*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 situations	Seminars of approach and resolution of practical cases with oral presentation
Outdoor study / field practices	Knowledge of the implantation of systems of quality in companies of transformation of the wood
Master Session	Explanation Of theoric concepts and exemplifications

Personalized attention

Methodologies	Description
Master Session	
Case studies / analysis of situations	

Assessment

	Description	Qualification	Training and Learning Results	
Case studies / analysis of situations	*Participacion Active in the *resolucion of the supposed *practicos that pose	10	C39 C40	D19
Outdoor study / field practices	Presentation of the memory of the visits realised	10	C39 C40	D19
Master Session	*Paricipacion Active in the debates that pose	10	C39 C40	
Short answer tests	*Valoracion Of the knowledge of the matter in *funcion to the questions realised	70	C39 C40	

Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

Recommendations

Other comments

*N|To

IDENTIFYING DATA				
Externships: Internships				
Subject	Externships: Internships			
Code	P03G370V01981			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	2nd
Teaching language	Spanish Galician			
Department				
Coordinator				
Lecturers				
E-mail				
Web	http://http://transferencia.uvigo.es/transferencia_gl/practicas/			
General description	http://transferencia.uvigo.es/opencms/export/sites/transferencia/transferencia_gl/documentos/instrucion_curriculares.pdf			

Competencies

Code	
C41	(*)CE-41.- Capacidade para a realización das tarefas profesionais propias da titulación no campo do traballo individual en equipo, aplicando, según sexa a práctica en cuestión, algunha/s das técnicas e aptitudes que, a modo de exemplo e sen ser excluíntes, se citan na memoria de verificación.

Learning outcomes

Expected results from this subject	Training and Learning Results
New	C41
New	

Contents

Topic	
The contents of the practical will be posed in each particular case by the School of Forest Engineering and the organisation and will attend to the acquisition by part of the student practitioner of some general and specific competitions related in this description of matter.	They developed any practical activity related with the degree
Professional activity of the student by the respective organisation that offer the practice.	They will be able to in practice the competitions purchased in the degree

Planning

	Class hours	Hours outside the classroom	Total hours
External practises	0	150	150

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

Methodologies

	Description
External practises	The contents of the practical will be posed in each particular case by the School of Forest Engineering and the organisation and will attend to the acquisition by part of the student practitioner of some general and specific competitions related in this description of matter.

Personalized attention

Methodologies	Description
External practises	The student will have a tutor in the centre and one in the company

Assessment

	Description	Qualification	Training and Learning Results
External practises		100	C41

Other comments on the Evaluation

The positive evaluation of the realisation of the practice will take place on the base of a favourable report issued by the organisation of received of the student practitioner. Anyway the student will have to present to the Direction of the School of Forest Engineering a memory summary of the practice realised

Sources of information**Basic Bibliography****Complementary Bibliography**

Recommendations

Other comments

The fixed competition worked is the *CE41, apart from this the tutor marked the others competitions worked that will depend on the practices realised and will be able to be in the group of the general, transversal and specify.

GENERAL COMPETITIONS: *CG1-*CG14

TRANSVERSAL COMPETITIONS: *CT1-*CT10

SPECIFIC COMPETITIONS: *CE1-*CE40

IDENTIFYING DATA				
Final Year Dissertation				
Subject	Final Year Dissertation			
Code	P03G370V01991			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	12	Mandatory	4th	2nd
Teaching language	Spanish Galician			
Department				
Coordinator				
Lecturers				
E-mail				
Web	http://www.forestales.uvigo.es/sites/default/files/Reg%20TFG%20Enx%20Forestal%20APROBADO%20comisi%C3%B3n%20Permanente%207_3_13.pdf			
General description	The *TFG is a personal work that each student will realise of autonomous way under *tutorización educational, and has to allow him show of form integrated the acquisition of the formative contents and the competitions associated to the title. In particular, it will have to contribute to the development of the following: to) Capacity to develop the methodology of a project and formulate a plan of work related with an or varied of the fields of present knowledge in the *Grao; *b) Capacity to execute the work projected; *c) Capacity to present and defend publicly the *TFG. In no case it can be a work presented previously by the/the student in some matter of any one another degree, although it can integrate or develop previous partial works facts in the activity of other matters of the degree. The fact that the *TFG was a personal and individual work does not exclude that, to develop a proposal of *envergadura sufficient, can participate varied/the students, each the one who with a precise plot of the global task; this fact will be authorised by the previous Academic Commission favourable report of the Coordinator of the Module of the *TFG . In this case the *alumnado involved in an even work will share the person tutor and will have the same court of evaluation, whereas the presentation and defence and the evaluation will be individual for each one of the parts. The *TFG will be able to elaborate in institutions or external companies to the University of Vigo, in which they establish in the institutional agreements signed. In whose case will exist the figure of a person *cotutora pertaining to the institution or company. The person academic tutor will share with the person *cotitora the tasks of direction and orientation of the/the student, and will be, in any case, responsibility of the academic tutor facilitate the administrative management of the realisation and defence. The student has right to the recognition of the *autoria of the *TFG elaborated and to the protection of his copyright. The titularity of the derivative rights will share with the *títores, with the *cotitores, the own University of Vigo and with the public entities or deprived to which belong, in the planned conditions in the valid legislation.			

Competencies	
Code	
C42	(*)CE-42: Capacidade para realizar un traballo orixinal para ser presentado e defendido ante un tribunal universitario, consistente nun proxecto no campo das tecnoloxías específicas da Enxeñaría Forestal, de natureza profesional no que se sintetizen as competencias adquiridas nas ensinanzas e materias da carreira.

Learning outcomes	
Expected results from this subject	Training and Learning Results

(*)*CE-42: Capacity to realise an original work to be presented and defended in front of a university court, consistent in a project in the field of the specific technologies of the Forest Engineering, of professional nature in which *sinteticen the competitions purchased in the educations and matters of the career.

C42

To way of orientation and without being *excluyente, the student will have to develop competitions purchased in matter of:

1. Basic studies of the half physicist, *biocenosis, landscape and *socioeconomía.
2. Application of the principles of the engineering.
3. Establishment of relations between the project and the half physicist and socioeconomic where realises .
4. Development of primary phases of the project of engineering.
5. Election of criteria, selection of alternatives, analysis of sensitivity, compatibility and stability, optimisation and simplification.
6. Organisation and protection of the project, development of the subsystems.
7. Preparation of the design, graphic development and planes of the project.
8. Verification, audits and control of quality.

New

New

Contents

Topic

The student will have to present in the term of 15 Said proposal will have to include like minimum: skillful days from dates it of ending of the term of

- enrollment corresponding to the second semester a) An explanatory memory of the project that pretends realise, that include Title, antecedents, justification of the need that tries cover or solution to the problem posed, aims, technology to employ and results expected.
- b) Methods, systems or mechanical tools, electronic the computer, material, machinery or other resources, foreseen in the realisation of the TFG.
- c) In its case, graphic or cartographic support of the place where pretends realise the TFG.
- d) Time estimated or schedule for the realisation of the TFG.
- e) Proposal of Tutor

Planning

	Class hours	Hours outside the classroom	Total hours
Tutored works	0	300	300

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

Methodologies

	Description
Tutored works	See Regulation TFG

Personalized attention

Assessment

Description	Qualification	Training and Learning Results
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Other comments on the Evaluation

Sources of information

Basic Bibliography

Complementary Bibliography

Recommendations