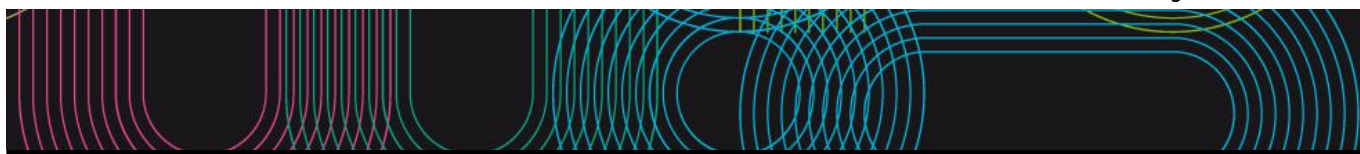




TABLA DE ERROS	
Lugar do erro	Descrición
Apartado de titulación 'Address'	Erro de PHP [Warning, script: /var/www/releases/docnet/docnet-20190611-122652/vendor/mpdf/mpdf/src/Image/ImageProcessor.php, liña: 223]: fopen(https://seix.uvigo.es/docnet_2.2/docencia/admin/fitxer.php?carpeta=fotos_ensenyaments&fitxer=32&nom_any_academic=2010_11) [function.fopen0]: failed to open stream: HTTP request failed! HTTP/1.1 404 Not Found
Apartado de titulación 'Address'	Erro de PHP [Warning, script: /var/www/releases/docnet/docnet-20190611-122652/vendor/mpdf/mpdf/src/Image/ImageProcessor.php, liña: 231]: fopen(https://seix.uvigo.es/docnet_2.2/docencia/admin/fitxer.php?carpeta=fotos_ensenyaments&fitxer=32&nom_any_academic=2010_11) [function.fopen0]: failed to open stream: HTTP request failed! HTTP/1.1 404 Not Found
Apartado de titulación 'Address'	Erro de PHP [Warning, script: /var/www/releases/docnet/docnet-20190611-122652/vendor/mpdf/mpdf/src/Image/ImageProcessor.php, liña: 223]: fopen(https://seix.uvigo.es/docnet_2.2/docencia/admin/fitxer.php?carpeta=fotos_ensenyaments&fitxer=31&nom_any_academic=2010_11) [function.fopen0]: failed to open stream: HTTP request failed! HTTP/1.1 404 Not Found
Apartado de titulación 'Address'	Erro de PHP [Warning, script: /var/www/releases/docnet/docnet-20190611-122652/vendor/mpdf/mpdf/src/Image/ImageProcessor.php, liña: 231]: fopen(https://seix.uvigo.es/docnet_2.2/docencia/admin/fitxer.php?carpeta=fotos_ensenyaments&fitxer=31&nom_any_academic=2010_11) [function.fopen0]: failed to open stream: HTTP request failed! HTTP/1.1 404 Not Found
Apartado de titulación 'Additional information'	Erro de PHP [Warning, script: /var/www/releases/docnet/docnet-20190611-122652/vendor/mpdf/mpdf/src/Image/ImageProcessor.php, liña: 223]: fopen(https://seix.uvigo.es/docnet_2.2/docencia/admin/fitxer.php?carpeta=fotos_ensenyaments&fitxer=36&nom_any_academic=2010_11) [function.fopen0]: failed to open stream: HTTP request failed! HTTP/1.1 404 Not Found
Apartado de titulación 'Additional information'	Erro de PHP [Warning, script: /var/www/releases/docnet/docnet-20190611-122652/vendor/mpdf/mpdf/src/Image/ImageProcessor.php, liña: 231]: fopen(https://seix.uvigo.es/docnet_2.2/docencia/admin/fitxer.php?carpeta=fotos_ensenyaments&fitxer=36&nom_any_academic=2010_11) [function.fopen0]: failed to open stream: HTTP request failed! HTTP/1.1 404 Not Found
Apartado de titulación 'Additional information'	Erro de PHP [Warning, script: /var/www/releases/docnet/docnet-20190611-122652/vendor/mpdf/mpdf/src/Image/ImageProcessor.php, liña: 223]: fopen(https://seix.uvigo.es/docnet_2.2/docencia/admin/fitxer.php?carpeta=fotos_ensenyaments&fitxer=34&nom_any_academic=2010_11) [function.fopen0]: failed to open stream: HTTP request failed! HTTP/1.1 404 Not Found
Apartado de titulación 'Additional information'	Erro de PHP [Warning, script: /var/www/releases/docnet/docnet-20190611-122652/vendor/mpdf/mpdf/src/Image/ImageProcessor.php, liña: 231]: fopen(https://seix.uvigo.es/docnet_2.2/docencia/admin/fitxer.php?carpeta=fotos_ensenyaments&fitxer=34&nom_any_academic=2010_11) [function.fopen0]: failed to open stream: HTTP request failed! HTTP/1.1 404 Not Found
Apartado de titulación 'Additional information'	Erro de PHP [Warning, script: /var/www/releases/docnet/docnet-20190611-122652/vendor/mpdf/mpdf/src/Image/ImageProcessor.php, liña: 223]: fopen(https://seix.uvigo.es/docnet_2.2/docencia/admin/fitxer.php?carpeta=fotos_ensenyaments&fitxer=33&nom_any_academic=2010_11) [function.fopen0]: failed to open stream: HTTP request failed! HTTP/1.1 404 Not Found
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## (\*)Escola de Enxeñaría Forestal

### Presentation

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

Our faculty offers the Degree in Forest Engineering

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

### Address

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



### Faculty Management

#### Managerial team:

Director: D. Enrique Valero Gutiérrez del Olmo

Deputy director: D<sup>a</sup>. 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](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
<b>SUMA</b>	<b>813</b>	<b>438</b>

**Laboratorios e talleres:**

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

2º	Lab. Enxeñaría Eléctrica	110,73 m <sup>2</sup>	21	NO	NO
2º	Lab. Enxeñaría Química	109,98 m <sup>2</sup>	15	27,40 m <sup>2</sup>	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)

[http://www.uvigo.es/uvigo\\_gl/administración/servicioalumnado](http://www.uvigo.es/uvigo_gl/administración/servicioalumnado)

<http://extension.uvigo.es>

[http://webs.uvigo.es/vicoap/normativa\\_oa.gl.htm](http://webs.uvigo.es/vicoap/normativa_oa.gl.htm)

[http://www.uvigo.es/uvigo\\_gl/estudiotitulaciones](http://www.uvigo.es/uvigo_gl/estudiotitulaciones)

[http://www.uvigo.es/uvigo\\_gl/vidauniversitaria/calendarioescolar](http://www.uvigo.es/uvigo_gl/vidauniversitaria/calendarioescolar)

[http://www.uvigo.es/uvigo\\_gl/vidauniversitaria/universidadvirtual](http://www.uvigo.es/uvigo_gl/vidauniversitaria/universidadvirtual)

[http://secxeral.uvigo.es/secxeral\\_gl/normativa/normativauniversidad/estudaintes/regulamento\\_estudiantes.html](http://secxeral.uvigo.es/secxeral_gl/normativa/normativauniversidad/estudaintes/regulamento_estudiantes.html)

[http://www.uvigo.es/uvigo\\_gl/vidauniversitaria/normativa](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/](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/](http://www.uvigo.es/uvigo_gl/vidauniversitaria/comedores_aloxamento/)
- **Other activities:**
  - [http://www.campuspontevedra.uvigo.es/index.php?\\*id=14](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	Planificación física e ordenación territorial	1st	6
P03G370V01702	Xestión de caza e pesca	1st	6
P03G370V01703	Patoloxía e pragas forestais	1st	6
P03G370V01704	Silvopascicultura	1st	6
P03G370V01705	Tecnoloxía do secado e conservación de madeiras	1st	6
P03G370V01706	Industrias de primeira transformación da madeira	1st	6
P03G370V01707	Organización industrial e procesos na industria da madeira	1st	6
P03G370V01708	Innovación e desenvolvemento de produtos na industria da madeira	1st	6
P03G370V01801	Xestión de espazos protexidos e biodiversidade	2nd	6
P03G370V01802	Incendios forestais	2nd	6
P03G370V01803	Celulosa, pasta e papel	2nd	6
P03G370V01804	Control de calidade e prevención de riscos laborais na industria forestal	2nd	6
P03G370V01981	Prácticas externas: Prácticas en empresas	2nd	6
P03G370V01991	Traballo de Fin de Grao	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	Type	Year	Quadmester
	6	Optional	4th	1st
Teaching language				
Department				
Coordinator				
Lecturers				
E-mail				
Web				
General description				

**Competencies**

Code		Typology
CG6	CG-06: Capacidade para identificar os diferentes elementos: elementos bióticos.	• know • Know How
CG9	CG-09: Capacidade para analizar a estrutura e función ecolóxica dos sistemas e recursos forestais, incluíndo as paisaxes.	• Know How
CG31	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.	• Know How
CE32	(*)CE-32: Capacidade para coñecer, comprender e utilizar os principios de: ordenación e planificación do territorio. Paisaxismo forestal.	• know • Know How
CT1	(*)CBI 1: Capacidade de análise e síntese.	• know • Know How
CT2	(*)CBI 2: Capacidade de organización e planificación.	• know • Know How
CT4	(*)CBI 4: Coñecementos básicos de informática.	• know
CT5	(*)CBI 5: Capacidade de xestión da información.	• Know How
CT6	(*)CBI 6: Adquirir capacidade de resolución de problemas.	• Know How
CT7	(*)CBI 7: Adquirir capacidade na toma de decisións.	• Know How
CT8	(*)CBP 1: Capacidades de traballo en equipo, con carácter multidisciplinar e en contextos tanto nacionais como internacionais.	• Know be
CT9	(*)CBP 2: Habilidades nas relacións interpersoais.	• Know be
CT13	(*)CBS 1: Aprendizaxe autónoma.	• Know How
CT20	(*)CBS 8: Sensibilidade cara a temas ambientais.	• Know be

**Learning outcomes**

Learning outcomes	Competences
(*)CE-32: Capacidad para conocer, comprender y utilizar los principios de: Ordenación y Planificación del Territorio. Planes de Paisajismo forestal.	CG6 CG9 CG31 CE32 CT1 CT2 CT4 CT5 CT6 CT7 CT8 CT9 CT13 CT20
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.

<b>Planning</b>			
	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.

<b>Methodologies</b>	
	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.

<b>Personalized attention</b>	
Methodologies	Description
Tutored works	

<b>Assessment</b>			
	Description	Qualification	Evaluated Competences

Tutored works	(*)	50	CG6 CG9 CG31 CE32 CT1 CT2 CT4 CT5 CT6 CT7 CT8 CT9 CT13 CT20
Presentations / exhibitions	(*)	50	CG6 CG9 CG31 CE32 CT1 CT2 CT4 CT5 CT6 CT7 CT8 CT9 CT13

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**Other comments on the Evaluation**

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**Sources of information**

**Basic Bibliography**

**Complementary Bibliography**

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**Recommendations**

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**IDENTIFYING DATA****Hunting and fishing management**

Subject	Hunting and fishing management			
Code	P03G370V01702			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Type	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	<a href="http://http://faitic.uvigo.es/index.php/es/">http://http://faitic.uvigo.es/index.php/es/</a>			
General description	(*)Preténdese que o alumno adquiera 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	Typology
CG25 CG-25: Capacidade para xestionar e protexer as poboacións de fauna forestal, con especial énfase nas de carácter cinxético e piscícola.	• Know How
CG35 CG-35: Capacidade para deseñar, dirixir, elaborar, implantar e interpretar proxectos.	• know • Know How
CG36 CG-36: Capacidade para deseñar, dirixir, elaborar, implantar e interpretar plans.	• know • Know How
CG37 CG-37: Capacidade para redactar informes técnicos.	• Know How
CG38 CG-38: Capacidade para redactar memorias de recoñecemento.	• Know How
CG39 CG-39: Capacidade para redactar valoracións.	• Know How
CG40 CG-40: Capacidade para redactar peritaxes.	• Know How
CG41 CG-41: Capacidade para redactar taxacións.	• Know How
CE33 (*)CE-33: Capacidade para coñecer, comprender e utilizar os principios de: xestión de caza e pesca. Sistemas acuícolas.	• know • Know How
CT1 (*)CBI 1: Capacidade de análise e síntese.	• know • Know How
CT2 (*)CBI 2: Capacidade de organización e planificación.	• Know How
CT3 (*)CBI 3: Capacidade de comunicación oral e escrita tanto na lingua vernácula como en linguas estranxeiras.	• know • Know How
CT5 (*)CBI 5: Capacidade de xestión da información.	• Know How
CT6 (*)CBI 6: Adquirir capacidade de resolución de problemas.	• Know How
CT7 (*)CBI 7: Adquirir capacidade na toma de decisións.	• Know How
CT8 (*)CBP 1: Capacidades de traballo en equipo, con carácter multidisciplinar e en contextos tanto nacionais como internacionais.	• Know be
CT9 (*)CBP 2: Habilidades nas relacións interpersoais.	• Know be
CT11 (*)CBP 4: Habilidades de razoamento crítico.	• Know How
CT13 (*)CBS 1: Aprendizaxe autónoma.	• Know How
CT14 (*)CBS 2: Adaptación a novas situacións.	• Know be
CT15 (*)CBS 3: Creatividade.	• Know be
CT16 (*)CBS 4: Liderado.	• Know be
CT20 (*)CBS 8: Sensibilidade cara a temas ambientais.	• Know be

**Learning outcomes**

Learning outcomes	Competences
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(\*)

CG25  
CG35  
CG36  
CG37  
CG38  
CG39  
CG40  
CG41  
CE33  
CT1  
CT2  
CT3  
CT5  
CT6  
CT7  
CT8  
CT9  
CT11  
CT13  
CT14  
CT15  
CT16  
CT20

New

### 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	Evaluated Competences
Autonomous practices through ICT	(*)Saídas de campo, traballos relacionados coa xestión piscícola e cinexética.	50	CG25 CG35 CG36 CG37 CG38 CG39 CG40 CG41 CE33 CT1 CT2 CT3 CT5 CT6 CT7 CT8 CT9 CT11 CT13 CT14 CT15 CT16 CT20
Multiple choice tests	(*)Diferentes preguntas sobre a materia vista nas sesións maxistras así como nas prácticas realizadas.	50	CE33

### Other comments on the Evaluation

#### Sources of information

##### Basic Bibliography

##### Complementary Bibliography

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- BEVERIDGE, M., Acuicultura en jaulas, 1984, Ed. Acribia S.A
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- GARCÍA DE JALÓN, D.; G. PRIETO y F. HERRERUELA, Peces ibéricos de agua dulce, 1989, Agrogías Mundi-Prensa, Madrid
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**Recommendations**

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**Subjects that continue the syllabus**

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Projects/P03G370V01503

Physical planning and land management/P03G370V01701

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**Subjects that are recommended to be taken simultaneously**

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Forestry Ecology/P03G370V01402

Forest exploitation/P03G370V01601

Forestry hydrology/P03G370V01604

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**Subjects that it is recommended to have taken before**

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Hydraulics/P03G370V01404

Forest entomology and Zoology/P03G370V01305

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**IDENTIFYING DATA****Pathology and forest pests**

Subject	Pathology and forest pests			
Code	P03G370V01703			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Type	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	<a href="http://http://webs.uvigo.es/ilanes/index.htm">http://http://webs.uvigo.es/ilanes/index.htm</a>			
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	Typology
CG1 CG-01: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Biolóxicos.	• know
CG11 CG-11: Coñecemento dos procesos de degradación que afectan aos sistemas e recursos forestais: pragas.	• know
CG16 CG-16: Capacidade para o uso das técnicas de conservación da biodiversidade.	• Know How
CE34 (*)CE-34: Capacidade para coñecer, comprender e utilizar os principios de: enfermidades e pragas forestais.	• know • Know How
CT6 (*)CBI 6: Adquirir capacidade de resolución de problemas.	• Know How
CT20 (*)CBS 8: Sensibilidade cara a temas ambientais.	• Know be

**Learning outcomes**

Learning outcomes	Competences
(*)	CG1 CG11 CG16 CE34 CT6 CT20
New	CG1 CG11 CG16 CE34 CT6 CT20

**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> ) cerambícidos ( <i>Monochamus galloprovincialis</i> ), etc. 18.3 Most representative taxa of sucking insects.
Topic 19. Eucalyptus pests.	19.1 Defoliating insects, <i>Gonipterus 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 algunhas pragas en frondosas autoctonas.	(*)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	Evaluated Competences
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	CG11 CG16 CE34 CT6 CT20
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	CG1 CG11 CE34 CT6 CT20

### Other comments on the Evaluation

#### Sources of information

##### Basic Bibliography

##### Complementary Bibliography

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BARBAGALLO S., CRAVEDI P., PASQUELINI E. & PATTI I., Pulgones de los principales cultivos frutales, Bayer/Mundi-Prensa, 2002

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DAJOZ R., Entomología forestal. Los insectos y el bosque: papel y diversidad de los insectos en el medio foresta, Mundi-Prensa, 2001

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LIÑÁN , C, Vademecum de productos fitosanitarios y nutricionales., Mundi Prensa, 2000-2014

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ZÚBRIK M., KUNCA A. & CSÓKA G. (Eds.), Insects and Diseases damaging trees and shrubs of Europe, NAP Editions, 2013

Robert N. Trigiano, Mark T. Windham, Alan S. Windham (Eds.), Plant pathology concepts and laboratory exercises, Boca Raton (Florida): CRC., 2008

Remacha-Gete, A., Agentes Bioticos que atacan la madera. Ciclo biológico, tipo de ataque y control del mismo, AITIM. Madrid, 1989

#### 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	Type	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	<a href="http://http://webs.uvigo.es/mchamorro/">http://http://webs.uvigo.es/mchamorro/</a>			
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	Typology
CG1 CG-01: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Biolóxicos.	• know • Know How
CG6 CG-06: Capacidade para identificar os diferentes elementos: elementos bióticos.	• know • Know How
CG7 CG-07: Capacidade para identificar os diferentes elementos: elementos físicos.	• know • Know How
CG8 CG-08: Capacidade para identificar os diferentes elementos: recursos naturais renovables susceptibles de protección, conservación e aproveitamento.	• know • Know How
CG14 CG-14: Capacidade para o uso das técnicas de protección do medio forestal.	• Know How
CG19 CG-19: Capacidade para aplicar as técnicas de xestión ambiental.	• Know How
CG22 CG-22: Capacidade para aplicar e desenvolver as técnicas selvícolas e de manexo de todo tipo de sistemas forestais, parques e áreas recreativas.	• know • Know How
CG23 CG-23: Capacidade para aplicar e desenvolver as técnicas de aproveitamento de produtos forestais madeirables e non madeirables.	• know • Know How
CG33 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.	• know • Know How
CE8 (*)CE-08: Coñecemento das bases e fundamentos biolóxicos do ámbito vexetal na enxeñaría.	• know
CE12 (*)CE-12: Capacidade para coñecer, comprender e utilizar os principios de: ecoloxía forestal	• know • Know How
CE15 (*)CE-15: Capacidade para coñecer, comprender e utilizar os principios de: botánica forestal.	• know • Know How
CE17 (*)CE-17: Capacidade para coñecer, comprender e utilizar os principios de: silvicultura.	• know • Know How
CE27 (*)CE-27: Capacidade para coñecer, comprender e utilizar os principios de: prevención e loita contra incendios forestais.	• know • Know How
CE35	• know • Know How
CT1 (*)CBI 1: Capacidade de análise e síntese.	• know • Know How
CT2 (*)CBI 2: Capacidade de organización e planificación.	• know • Know How
CT7 (*)CBI 7: Adquirir capacidade na toma de decisións.	• Know How
CT10 (*)CBP 3: Recoñecer a diversidade e a multiculturalidade.	• know

**Learning outcomes**

Learning outcomes	Competences
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(\*)-Coñocer as bases ecoloxicas das principais gramineas e leguminosas do norte peninsular  
 - Funcionamento natural dos diversos sistemas pastorais e silvopastorais  
 - Manexo e xestión dos devanditos sistemas silvopastorais

CG1  
 CG6  
 CG7  
 CG8  
 CG14  
 CG19  
 CG22  
 CG23  
 CG33  
 CE8  
 CE12  
 CE15  
 CE17  
 CE27  
 CE35  
 CT1  
 CT2  
 CT7  
 CT10

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. Bromatolóxico 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 practises	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 silvopastoral interest

### Personalized attention

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

### Assessment

	Description	Qualification	Evaluated Competences
Laboratory practises	(*) (*) Recoñecemento de especies pascícolas	5	CG6 CG7 CG8 CG14 CG19 CG22 CG23 CG33 CE12 CE15 CE17 CE27 CE35 CT1 CT7 CT10
Classroom work	(*)(*) Confeción dun Herbario	10	CG1 CE8 CE12 CE15 CE35 CT1 CT2 CT7
Outdoor study / field practices	(*)(*) Recoñecemento e identificación en campo de especies de interese pascícola	0	

Multiple choice tests	(*)Recoñocer os coñecementos adquiridos	60	CG1 CG6 CG7 CG8 CG14 CG19 CG22 CG23 CG33 CE8 CE12 CE15 CE17 CE27 CE35
Jobs and projects	(*)Realizar proxectos e exercicios de xestión basados en datos reais	25	CG1 CG6 CG7 CG14 CG19 CG22 CG23 CE12 CE15 CE17 CE27 CE35 CT1 CT2 CT7

### Other comments on the Evaluation

#### Sources of information

##### Basic Bibliography

##### Complementary Bibliography

SAN MIGUEL, A., Pastizales Naturales Españoles, E.T.S.I.Madrid.

RIGUEIRO,A., Pastoreo controlado en los bosques gallegos, El Campo:29-33

SAN MIGUEL, A, La dehesa Española, E.T.S.I.Madrid.

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, Universidad de Santiago

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, ICONA (MAPA).Madrid

MONTOYA, J. M., Pastoralismo Mediterráneo, ICONA Madrid

SILVA,F.J, Prácticas agroforestales en pinares y eucaliptales atlánticos, Congreso Forestal Español.Lourizán (Pontevedra).Po

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

#### 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**

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Botany/P03G370V01303

Edaphology/P03G370V01302

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**IDENTIFYING DATA****Wood preservation and drying technology**

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

**Competencies**

Code	Typology
CG32 CG-32: Capacidade para caracterizar as propiedades anatómicas e tecnolóxicas das materias primas forestais madeirables así como das tecnoloxías e industrias destas materias primas.	<ul style="list-style-type: none"> <li>• know</li> <li>• Know How</li> </ul>
CE31 (*)CE-31: Coñecementos para o cálculo e deseño de instalacións de carpintería. Secado, descortizado e trituración da madeira.	<ul style="list-style-type: none"> <li>• know</li> <li>• Know How</li> </ul>
CT1 (*)CBI 1: Capacidade de análise e síntese.	<ul style="list-style-type: none"> <li>• know</li> <li>• Know How</li> </ul>
CT2 (*)CBI 2: Capacidade de organización e planificación.	<ul style="list-style-type: none"> <li>• know</li> <li>• Know How</li> </ul>
CT6 (*)CBI 6: Adquirir capacidade de resolución de problemas.	<ul style="list-style-type: none"> <li>• Know How</li> </ul>

**Learning outcomes**

Learning outcomes	Competences
(*)Conocimientos para el cálculo y diseño de instalaciones de secado y tratamiento de la madera	CG32 CE31 CT1 CT2 CT6

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	Evaluated Competences
Master Session	(*) Evaluación continua a través de la asistencia a las sesiones impartidas	20	CG32 CE31 CT1
Troubleshooting and / or exercises	(*) Evaluación continua a través de la asistencia a las clases prácticas impartidas	10	CG32 CE31 CT2 CT6
Outdoor study / field practices	(*) Presentación de una memoria de las visitas realizadas	5	CG32 CT1 CT2 CT6
Short answer tests	(*)Evaluación de la prueba de evaluación sobre los contenidos teóricos de la asignatura	45	CG32 CE31
Troubleshooting and / or exercises	(*)Evaluación de las pruebas de realización de ejercicios	20	CG32 CE31 CT1 CT2 CT6

### 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

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**Subjects that are recommended to be taken simultaneously**

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Primary wood processing industries/P03G370V01706

Product development and innovation in the wood industry/P03G370V01708

Industrial organisation and processes in the wood industry/P03G370V01707

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**Subjects that it is recommended to have taken before**

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Wood technology/P03G370V01606

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**IDENTIFYING DATA****Primary wood processing industries**

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

**Competencies**

Code		Typology
CG8	CG-08: Capacidade para identificar os diferentes elementos: recursos naturais renovables susceptibles de protección, conservación e aproveitamento.	• know • Know How
CG23	CG-23: Capacidade para aplicar e desenvolver as técnicas de aproveitamento de produtos forestais madeirables e non madeirables.	• know • Know How
CG32	CG-32: Capacidade para caracterizar as propiedades anatómicas e tecnolóxicas das materias primas forestais madeirables así como das tecnoloxías e industrias destas materias primas.	• know • Know How
CG33	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.	• know • Know How
CG34	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.	• know • Know How
CE29	(*)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.	• know • Know How
CT6	(*)CBI 6: Adquirir capacidade de resolución de problemas.	• Know How
CT19	(*)CBS 7: Motivación pola calidade.	• Know be
CT20	(*)CBS 8: Sensibilidade cara a temas ambientais.	• Know be

**Learning outcomes**

Learning outcomes	Competences
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	CG8 CG23 CG32 CG33 CG34 CE29 CT6 CT19 CT20
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 Seminars of resolution of problems type and oral presentation exercises	
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	Evaluated Competences
Introductory activities		0	
Master Session	Continuous evaluation through the assistance to the classes of classroom	7	CG8 CG23 CG32 CG33 CG34 CE29
Troubleshooting and / or exercises	Continuous evaluation through the assistance to the classes of resolution of problems	3	CG8 CG23 CG32 CG33 CG34 CE29 CT6

Outdoor study / field practices	Presentation of a memory of the visits realised	10	CG8 CG23 CG32 CG33 CE29 CT6 CT19 CT20
Short answer tests	Evaluation of the theoretical knowledges through proofs of short answer	60	CG8 CG23 CG32 CG33 CG34 CE29
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	CG8 CG23 CE29 CT6
Reports / memories of practice		0	

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### Other comments on the Evaluation

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### Sources of information

#### Basic Bibliography

#### Complementary Bibliography

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### Recommendations

#### Subjects that continue the syllabus

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

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#### 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

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#### Subjects that it is recommended to have taken before

Wood technology/P03G370V01606

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**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	Type	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	<a href="http://www.forestales.uvigo.es">http://www.forestales.uvigo.es</a>			
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		Typology
CB1	(*)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	• know • Know How • Know be
CB2	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	• know • Know How • Know be
CG32	CG-32: Capacidade para caracterizar as propiedades anatómicas e tecnolóxicas das materias primas forestais madeirables así como das tecnoloxías e industrias destas materias primas.	• know • Know How
CG33	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.	• know • Know How
CG34	CG-34: Capacidade de organización e planificación de empresas e outras institucións, con coñecemento das disposicións legislativas que lles afectan e dos fundamentos do marketing e comercialización de produtos forestais.	• know • Know How
CG42	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.	• know • Know How
CE30	(*)CE-30: Capacidade para coñecer, comprender e utilizar os principios de: coñecemento dos principios básicos dos procesos de segunda transformación da madeira.	• know • Know How • Know be
CE31	(*)CE-31: Coñecementos para o cálculo e deseño de instalacións de carpintería. Secado, descortizado e trituración da madeira.	• know • Know How • Know be
CT1	(*)CBI 1: Capacidade de análise e síntese.	• know • Know How
CT2	(*)CBI 2: Capacidade de organización e planificación.	• know • Know How
CT13	(*)CBS 1: Aprendizaxe autónoma.	• Know How
CT14	(*)CBS 2: Adaptación a novas situacións.	• Know be
CT19	(*)CBS 7: Motivación pola calidade.	• Know be

**Learning outcomes**

Learning outcomes	Competences
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(*)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	CB1 CB2 CG32 CG33 CG34 CG42 CE30 CE31 CT1 CT2 CT13 CT14 CT19
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## Contents

Topic	
The sector of second transformation of the wood	The carpentry and furniture industry in: <ul style="list-style-type: none"> <li>· Galicia</li> <li>· Spain</li> <li>· Europe</li> </ul>
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	Evaluated Competences

Master Session	(*)Participación activa no debate que se expoña na aula sobre os conceptos teóricos	10	CE30 CE31
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	CE30 CE31
Outdoor study / field practices	(*)Presentación dunha memoria das visitas realizadas	5	CE30 CE31
Short answer tests	(*)Proba escrita sobre os contidos teóricos e prácticos da materia	80	CE30 CE31

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### Other comments on the Evaluation

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### Sources of information

#### Basic Bibliography

#### Complementary Bibliography

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### Recommendations

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#### Subjects that are recommended to be taken simultaneously

Primary wood processing industries/P03G370V01706

Product development and innovation in the wood industry/P03G370V01708

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#### Subjects that it is recommended to have taken before

Wood technology/P03G370V01606

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## 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	Type	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	<a href="http://www.forestaes.uvigo.es">http://www.forestaes.uvigo.es</a>			
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	Typology
CE31 (*)CE-31: Coñecementos para o cálculo e deseño de instalacións de carpintería. Secado, descortizado e trituración da madeira.	• know
CT2 (*)CBI 2: Capacidade de organización e planificación.	• Know How
CT18 (*)CBS 6: Iniciativa e espírito emprendedor.	• Know be
CT19 (*)CBS 7: Motivación pola calidade.	• Know be

## Learning outcomes

Learning outcomes	Competences
Knowledges for the calculation and design of installations of carpentry, dried, *descortizado and *trituración of the wood	CE31 CT2
The relation between competitions and results, and the weight of each competition inside the matter show in the pdf attach.	CT18 CT19
<a href="http://forestaes.uvigo.es/sites/default/files/38%20*Innovacion.Pdf#*overlay-*context=is/*content/competitions-and-resulted-of-learning-by-matter">http://forestaes.uvigo.es/sites/default/files/38%20*Innovacion.Pdf#*overlay-*context=is/*content/competitions-and-resulted-of-learning-by-matter</a>	

## 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	<ul style="list-style-type: none"> <li>4.1 Coverings of edges. <ul style="list-style-type: none"> <li>4.1.1 Based on solid wood battens.</li> <li>4.1.2 Based on wood veneers.</li> <li>4.1.3 The base of PVC sheets.</li> <li>4.1.4 Decorative paper base.</li> </ul> </li> <li>4.2.- Coverings of boards. <ul style="list-style-type: none"> <li>4.2.1 Made of sheet metal.</li> <li>4.2.2 A base of impregnated papers.</li> <li>4.2.3 Laminates.</li> <li>4.2.4 Lacquered.</li> </ul> </li> </ul>
5.- Finished in carpentry and pieces of furniture	<ul style="list-style-type: none"> <li>5.1 Introduction.</li> <li>5.2 Classification of finishes. <ul style="list-style-type: none"> <li>5.2.1 By the function of the varnish.</li> <li>5.2.2 For the chemical composition of the varnish.</li> </ul> </li> <li>5.3 Components of a finish. <ul style="list-style-type: none"> <li>5.3.1 Solvents.</li> <li>5.3.2 Resins.</li> <li>5.3.3 Dyes and additives.</li> <li>5.3.4 Loads.</li> </ul> </li> <li>5.4 Varnishes dried uv</li> </ul>
6.- Wooden doors	<ul style="list-style-type: none"> <li>6.1 Introduction.</li> <li>6.2 Classification of the doors. <ul style="list-style-type: none"> <li>6.2.1 By his constitution.</li> <li>6.2.2 By the appearance of his faces.</li> <li>6.2.3 By the form of the singing.</li> <li>6.2.4 By the appearance of the singing.</li> </ul> </li> <li>6.3 Measures and tolerances of a door.</li> <li>6.4 Characteristics of the wood.</li> <li>6.5 Doors in function of his constitution <ul style="list-style-type: none"> <li>6.5.1 Doors to the flat.</li> <li>6.5.2 Doors of carpentry.</li> <li>6.5.3 doors of carpentry in relief.</li> </ul> </li> <li>6.6 special Doors <ul style="list-style-type: none"> <li>6.6.1 Doors to resistant to the fire.</li> <li>6.6.2 acoustic Doors.</li> <li>6.6.3 Doors of security.</li> </ul> </li> </ul>
7.- Wooden windows	<ul style="list-style-type: none"> <li>7.1 Introduction.</li> <li>7.2 Elements that constitute a window. <ul style="list-style-type: none"> <li>7.2.1 Elements of the window recess.</li> <li>7.2.2 Window elements.</li> </ul> </li> <li>7.3 Characteristics of a wooden window. <ul style="list-style-type: none"> <li>7.3.1 Air permeability.</li> <li>7.3.2 Resistance to wind.</li> <li>7.3.3 Water tightness.</li> <li>7.3.4 Glazing.</li> </ul> </li> </ul>
8.- Wooden floors	<ul style="list-style-type: none"> <li>8.1 Deckings</li> <li>8.2 Pallets</li> <li>8.3 Lamparquet</li> <li>8.4 Multi-layer parquet</li> <li>8.5 Panels <ul style="list-style-type: none"> <li>8.5.1 Inlaid parquet</li> <li>8.5.2 Industrial Parquet</li> <li>8.5.3 Panels of historical designs</li> <li>8.5.4 Multilayer panels</li> </ul> </li> <li>8.6 Lingering</li> <li>8.7 Recessed panel flooring</li> <li>8.8 laminated floors</li> <li>8.9 Plastic flooring (pvc)</li> </ul>
9.- Wooden stairs	<ul style="list-style-type: none"> <li>9.1 Introduction</li> <li>9.2 Definitions</li> <li>9.3 Typology of stairs <ul style="list-style-type: none"> <li>9.3.1 Structural Typology</li> <li>9.3.2 Typology by path</li> </ul> </li> <li>9.4 Technical aspects in the design of a ladder</li> </ul>
10.- Ergonomics and piece of furniture	<ul style="list-style-type: none"> <li>10.1 General concepts</li> <li>10.2 Scientific bases in ergonomics</li> <li>10.3 Implications in furniture design of the sedentary stance.</li> <li>10.4 Anthropometric tables.</li> </ul>

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	Evaluated Competences
Master Session	Assistance and active participation in the sessions *magistrales	10	CE31
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	CE31 CT2 CT18 CT19
Classroom work	The student will realise a project of development of a new product	50	CE31 CT2 CT18 CT19
Short answer tests	Proof written to final of course for the evaluation of the competitions purchased along the course	35	CE31



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**Other comments on the Evaluation**

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**Sources of information**

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**Basic Bibliography**

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**Complementary Bibliography**

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**Recommendations**

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**Subjects that continue the syllabus**

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Environmental management/P03G370V01608

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

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**Subjects that are recommended to be taken simultaneously**

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

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**Subjects that it is recommended to have taken before**

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Basics of business economics/P03G370V01104

Wood technology/P03G370V01606

Wood preservation and drying technology/P03G370V01705

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**Other comments**

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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.

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**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	Type	Year	Quadmester
	6	Optional	4th	2nd
Teaching language				
Department				
Coordinator	Cordero Rivera, Adolfo			
Lecturers	Cordero Rivera, Adolfo Rivas Torres, Anais			
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		Typology
CG1	CG-01: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Biolóxicos.	• know • Know How
CG2	CG-02: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Físicos.	
CG6	CG-06: Capacidade para identificar os diferentes elementos: elementos bióticos.	• know • Know How
CG7	CG-07: Capacidade para identificar os diferentes elementos: elementos físicos.	
CG8	CG-08: Capacidade para identificar os diferentes elementos: recursos naturais renovables susceptibles de protección, conservación e aproveitamento.	• know • Know How
CG9	CG-09: Capacidade para analizar a estrutura e función ecolóxica dos sistemas e recursos forestais, incluíndo as paisaxes.	• Know How
CG16	CG-16: Capacidade para o uso das técnicas de conservación da biodiversidade.	• Know How
CG24	CG-24: Capacidade para resolver os problemas técnicos derivados da xestión dos espazos naturais.	• Know How
CE12	(*)CE-12: Capacidade para coñecer, comprender e utilizar os principios de: ecoloxía forestal	
CE36	(*)CE-36: Capacidade para resolver problemas técnicos derivados da xestión de espazos naturais. Conservación da biodiversidade.	• Know How
CT1	(*)CBI 1: Capacidade de análise e síntese.	• Know How
CT2	(*)CBI 2: Capacidade de organización e planificación.	• Know How
CT5	(*)CBI 5: Capacidade de xestión da información.	
CT7	(*)CBI 7: Adquirir capacidade na toma de decisións.	• Know How
CT11	(*)CBP 4: Habilidades de razoamento crítico.	
CT15	(*)CBS 3: Creatividade.	• Know be
CT20	(*)CBS 8: Sensibilidade cara a temas ambientais.	• Know be

**Learning outcomes**

Learning outcomes	Competences
(*)	CG1 CG2 CG6 CG7 CG8 CG9 CG16 CG24 CE12 CE36 CT1 CT2 CT5 CT7 CT11 CT15 CT20

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**Contents**


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## 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 ( <i>Emys orbicularis</i> ) in Galicia; Plan of control of liberal populations (Odonata) of European interest; Reproductive biology and Camariña management ( <i>Corema album</i> ) in the Cies 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 Given the peculiarities of the Park, with its insularity, the visit will be to the of the Atlantic Islands of Galicia. 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

	Description	Qualification	Evaluated Competences
Master Session	(*)Avaliarase mediante exames de resposta curta.	65	CG1 CG2 CG6 CG7 CG8 CG9 CG16 CG24 CE12 CT1 CT11
Outdoor study / field practices	(*)Avaliaranse no exame da materia mediante preguntas específicas.	5	CG6 CG7 CG8 CG9 CG16 CE12 CT1 CT11

Classroom work	(*)Avaliaranse no exame da materia mediante preguntas específicas ou ben mediante traballos escritos.	10	CG6 CG7 CG8 CG9 CG16 CG24 CE12 CE36 CT1 CT11 CT20
Practice in computer rooms	(*)Avaliaranse no exame da materia mediante preguntas específicas ou ben mediante traballos.	10	CG6 CG7 CG8 CG9 CG16 CE12 CT1 CT5 CT11 CT15 CT20
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, Oxford

##### Complementary Bibliography

Primack, R.B. & J. Ros, Introducción a la Biología de la Conservación, Ariel, 2002, Barcelona

Cordero Rivera, A. (Editor), Proxecto Galicia, Ecoloxía. Volumen 45. Conservación I., Hércules de Ediciones, 2005, A Coruña

Hunter, M.L., Fundamentals of Conservation Biology, Blackwell Science, 2002, Oxford

Sutherland, W.J., The Conservation Handbook: Research, Management and Policy, Blackwell Science, 2000, Oxford

Shafer, C. L., Nature Reserves, Smithsonian Institution Press, 1990, Washington

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, Malden

#### 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	Type	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	Typology
CG8 CG-08: Capacidade para identificar os diferentes elementos: recursos naturais renovables susceptibles de protección, conservación e aproveitamento.	• know • Know How
CG12 CG-12: Coñecemento dos procesos de degradación que afecten aos sistemas e recursos forestais: incendios.	• know
CG15 CG-15: Capacidade para o uso das técnicas de restauración hidrolóxico forestal.	• Know How
CE27 (*)CE-27: Capacidade para coñecer, comprender e utilizar os principios de: prevención e loita contra incendios forestais.	• know • Know How
CT5 (*)CBI 5: Capacidade de xestión da información.	• Know How
CT6 (*)CBI 6: Adquirir capacidade de resolución de problemas.	• Know How
CT7 (*)CBI 7: Adquirir capacidade na toma de decisións.	• Know How
CT11 (*)CBP 4: Habilidades de razoamento crítico.	• Know How
CT13 (*)CBS 1: Aprendizaxe autónoma.	• Know How

## Learning outcomes

Learning outcomes	Competences
Identify the concept of forest fire, *his **características *general *and he problem of wool *causality the different territorial *levels	CG8 CG12 CG15 CE27 CT5 CT6 CT7 CT11 CT13

Lana relation between competitions \*and results, \*and he 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](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 limitaci3n.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	Evaluated Competences

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	CG8 CG12 CG15 CE27 CT6 CT7 CT13
Short answer tests	*Approach of questions of *brief answer that he student has to resolve in class in him act of evaluation	21	CG8 CG12 CG15 CE27 CT11
Troubleshooting and / or exercises	*Approach of problems that he student has to resolve in class in him act of evaluation	49	CG8 CG12 CG15 CE27 CT5 CT6 CT11 CT13

#### Other comments on the Evaluation

All wools 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, Madrid

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, Santiago de Compostela

##### Complementary Bibliography

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

#### 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	Type	Year
	6	Optional	4th
Teaching language			
Department			
Coordinator	Lorenzo Fouz, David		
Lecturers	Lorenzo Fouz, David		
E-mail	davidlorenzofouz@gmail.com		
Web			
General description			

**Competencies**

Code		Typology
CG3	CG-03: Capacidade para comprender os seguintes fundamentos necesarios para o desenvolvemento da actividade profesional: Químicos.	• know • Know How
CG8	CG-08: Capacidade para identificar os diferentes elementos: recursos naturais renovables susceptibles de protección, conservación e aproveitamento.	• know • Know How
CG23	CG-23: Capacidade para aplicar e desenvolver as técnicas de aproveitamento de produtos forestais madeirables e non madeirables.	• Know How
CG32	CG-32: Capacidade para caracterizar as propiedades anatómicas e tecnolóxicas das materias primas forestais madeirables así como das tecnoloxías e industrias destas materias primas.	• know • Know How
CE37	(*)CE-37: Coñecementos dos principios básicos da química da celulósica e papeleira e dos seus procesos industriais.	• know
CT1	(*)CBI 1: Capacidade de análise e síntese.	• Know How
CT3	(*)CBI 3: Capacidade de comunicación oral e escrita tanto na lingua vernácula como en linguas estranxeiras.	• Know How
CT13	(*)CBS 1: Aprendizaxe autónoma.	• Know How

**Learning outcomes**

Learning outcomes	Competences
(*)CE-37: Capacidad para conocer, comprender y utilizar los principios de los procesos industriales de fabricación de celulosa y papel	CG3 CG8 CG23 CG32 CE37 CT1 CT3 CT13

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.	I 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 practises	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 practises	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	Evaluated	Competences
Short answer tests	(*)Bloques de definiciones (20) y bloques de respuestas conceptuales (10)	70		CG3 CG8 CG23 CG32 CE37

Practical tests, real task execution and/or simulated.	(*)Presentación en clase del trabajo asignado	10	CG3 CG8 CG23 CG32 CE37 CT13
Troubleshooting and / or exercises	(*)Dos ejercicios prácticos	20	CG8 CG23 CG32 CT13

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### Other comments on the Evaluation

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#### Sources of information

##### Basic Bibliography

##### Complementary Bibliography

1. Smook G. A, Handbook for pulp and paper technologists, 2002, Tappi press
2. Herbert Sixta, Handbook of Pulp. 2 Volume, 2006, Set. Wiley-VCH
3. Hans Ulrich Suess, Pulp Bleaching Today, 2010, Walter de Gruyter GmbH
4. Pratima Bajpai, Environmentally Friendly Production of Pulp and Paper, 2010, John Wiley & Sons, Inc.
5. Varios Autores, 5. Papermaking Science and Technology (19 vol.), 1999, Fapet Oy, Finland

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#### 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	Type	Year	Quadmester
	6	Optional	4th	2nd
Teaching language				
Department				
Coordinator	Bartolome Mier, Javier			
Lecturers	Bartolome Mier, Javier			
E-mail	jbartolome@uvigo.es			
Web	<a href="http://www.forestales.uvigo.es">http://www.forestales.uvigo.es</a>			
General description	Introduction to the systems of guarantee of the quality and of management of labour risks. Methods of continuous improvement			

**Competencies**

Code	Typology
CE39 (*)CE-39: Capacidade para coñecer, comprender e utilizar os principios de: control de calidade na industria forestal.	• know • Know How
CE40 (*)CE-40: Capacidade para coñecer, comprender e utilizar os principios de: seguridade e hixiene industrial.	• know • Know How
CT19 (*)CBS 7: Motivación pola calidade.	• Know be

**Learning outcomes**

Learning outcomes	Competences
Capacity to know, comprise and use the principles of: Control of quality and prevention of labour risks in the forest industry.	CE39 CE40 CT19
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 psicossycology

### 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 theoretic concepts and exemplifications

### Personalized attention

Methodologies	Description
Master Session	
Case studies / analysis of situations	

### Assessment

	Description	Qualification	Evaluated	Competences
Master Session	*Participacion Active in the debates that pose	10		CE39 CE40
Case studies / analysis of situations	*Participacion Active in the *resolucion of the supposed *practicos that pose	10		CE39 CE40 CT19
Outdoor study / field practices	Presentation of the memory of the visits realised	10		CE39 CE40 CT19
Short answer tests	*Valoracion Of the knowledge of the matter in *funcion to the questions realised	70		CE39 CE40

### Other comments on the Evaluation

### Sources of information

#### Basic Bibliography

#### Complementary Bibliography

### Recommendations

**Other comments**

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\*N|To

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**IDENTIFYING DATA****Externships: Internships**

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

**Competencies**

Code	Typology
CE41 (*)CE-41.- Capacidade para a realización das tarefas profesionais propias da titulación no campo do traballo individual e 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.	<ul style="list-style-type: none"> <li>• know</li> <li>• Know How</li> <li>• Know be</li> </ul>

**Learning outcomes**

Learning outcomes	Competences
New	CE41
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	Evaluated Competences
External practises		100	CE41

**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

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**Sources of information**

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**Basic Bibliography**

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**Complementary Bibliography**

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**Recommendations**

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**Other comments**

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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

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<b>IDENTIFYING DATA</b>				
<b>Final Year Dissertation</b>				
Subject	Final Year Dissertation			
Code	P03G370V01991			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Type	Year	Quadmester
	12	Mandatory	4th	2nd
Teaching language	Spanish Galician			
Department				
Coordinator				
Lecturers				
E-mail				
Web	<a href="http://www.forestaes.uvigo.es/sites/default/files/Reg%20TFG%20Enx%20Forestal%20APROBADO%20comisi%C3%B3n%20Permanente%207_3_13.pdf">http://www.forestaes.uvigo.es/sites/default/files/Reg%20TFG%20Enx%20Forestal%20APROBADO%20comisi%C3%B3n%20Permanente%207_3_13.pdf</a>			
General description	<p>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.</p> <p>In particular, it will have to contribute to the development of the following:</p> <p>t) 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;</p> <p>*b) Capacity to execute the work projected;</p> <p>*c) Capacity to present and defend publicly the *TFG.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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 *titores, 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.</p>			

<b>Competencies</b>	
Code	Typology
CE42 (*)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 sintetizan as competencias adquiridas nas ensinanzas e materias da carreira.	<ul style="list-style-type: none"> <li>• know</li> <li>• Know How</li> <li>• Know be</li> </ul>
<b>Learning outcomes</b>	
Learning outcomes	Competences

(\*)\*CE-42: Capacity to realise an original work to be presented and defended in front of a university court, CE42 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. 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 semestera) 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	Evaluated Competences
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## Other comments on the Evaluation

## Sources of information

### Basic Bibliography

### Complementary Bibliography

## Recommendations