



## IDENTIFYING DATA

### Topography, remote sensing and geographic information systems

Subject	Topography, remote sensing and geographic information systems			
Code	P03G370V01403			
Study programme	(*)Grao en Enxeñaría Forestal			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	9	Mandatory	2nd	2nd
Teaching language	Galician			
Department	Natural Resources and Environment Engineering			
Coordinator	Lorenzo Cimadevila, Henrique			
Lecturers	Lorenzo Cimadevila, Henrique			
E-mail	hlorenzo@uvigo.es			
Web	<a href="http://faitic.uvigo.es/">http://faitic.uvigo.es/</a>			
General description	(*)Trátase dunha materia que versa sobre os instrumentos e métodos utilizados para a realización de medición de precisión sobre o terreo e a súa representación a escala. Se abordan tamén as novas metodoloxías de adquisición e xestión de datos espaciais mediante SIX e Teledetección.			

## Competencies

Code	
A2	That students know how to apply acquired knowledge and their capacity to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study
A4	That the students know how to communicate their conclusions -and the knowledge and ultimate reasons that sustain them- to specialized and non-specialized audiences in a clear and unambiguous way
A5	That students have the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous.
B1	Ability to understand the biological, chemical, physical, mathematical and representation systems necessary for the development of professional activity, as well as to identify the different biotic and physical elements of the forest environment and renewable natural resources susceptible to protection, conservation and exploitations in the forest area.
B4	Ability to evaluate and correct the environmental impact, as well as apply the techniques of auditing and environmental management.
B6	Ability to measure, inventory and evaluate forest resources, apply and develop silvicultural techniques and management of all types of forest systems, parks and recreational areas, as well as techniques for harvesting timber and non-timber forest products
B7	Ability to solve technical problems derived from the management of natural spaces.
B13	Ability to design, direct, elaborate, implement and interpret projects and plans, as well as to write technical reports, recognition reports, assessments, appraisals and appraisals.
B14	Ability to understand, interpret and adopt scientific advances in the forest field, to develop and transfer technology and to work in a multilingual and multidisciplinary environment
C1	Knowledge of representation techniques. Capacity for spatial vision. Standardization. Topographical drawing. Computer programs of interest in engineering: computer-aided design.
C16	Ability to know, understand and use the principles of: topography and stakeout. Geographic information systems and remote sensing. Computer programs for spatial data processing.
D5	Capacity for information management, analysis and synthesis
D6	Organization and planning capacity
D8	Ability to solve problems, critical reasoning and decision making
D9	Teamwork skills, skills in interpersonal relationships and leadership.
D10	Autonomous Learning

## Learning outcomes

Expected results from this subject	Training and Learning Results			
New	A2	B1	C1	D5
	A4	B4	C16	D6
	A5	B6		D8
		B7		D9
		B13		D10
		B14		

## Contents

Topic	
Topography	<ul style="list-style-type: none"> <li>- Introduction to Geodesy and Cartography</li> <li>- Instruments</li> <li>- Methods: radiation, itineraries, intersecting</li> <li>- Stake</li> </ul>
Remote sensing	<ul style="list-style-type: none"> <li>- Physical fundamentals</li> <li>- Sensors and Platforms</li> <li>- Digital image processing</li> <li>- Applications</li> </ul>
Geographic information systems	<ul style="list-style-type: none"> <li>- SIX concept</li> <li>- Models and Data Structures</li> <li>- Vector GIS</li> <li>- SIG raster</li> <li>- Insert digital terrain modes</li> </ul>

## Planning

	Class hours	Hours outside the classroom	Total hours
Problem solving	25	50	75
Seminars	3	3	6
Lecturing	1	1	2
Problem solving	3	3	6
Laboratory practices	10	20	30
Computer practices	16	32	48
Lecturing	20	40	60
Short answer tests	1	0	1
Laboratory practice	3	0	3
Practices report	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
Problem solving	Activity which formulated problem and / or exercises related to the course. The student should develop appropriate solutions or right through the exercise routines, application of formulas or algorithms, application processing procedures available information and interpretation of the results. It is often used to complement the lecture.
Seminars	Activities focused to work on a specific topic, allowing delve or supplement the contents of the field. They can be used to supplement the lectures.
Lecturing	Presentation by the teacher of the contents on the subject under study, theoretical and / or guidelines for a job, exercise or project to be developed by the student.
Problem solving	Activity which formulated problem and / or exercises related to the course. The student should develop appropriate solutions or right through the exercise routines, application of formulas or algorithms, application processing procedures available information and interpretation of the results. It is often used to complement the lecture.
Laboratory practices	Activities application of knowledge to specific situations and basic skills acquisition and related procedural matter under study. Special spaces are developed with specialized equipment (scientific and technical laboratories, languages, etc.).
Computer practices	Activities application of knowledge to specific situations, and the acquisition of basic skills and procedural matters related to the object of study, which are held in computer rooms.
Lecturing	Presentation by the teacher of the contents on the subject under study, theoretical and / or guidelines for a job, exercise or project to be developed by the student.

## Personalized attention

Methodologies	Description
Lecturing	

Problem solving	
Seminars	
Laboratory practices	
<b>Tests</b>	<b>Description</b>
Practices report	

<b>Assessment</b>					
	Description	Qualification	Training and Learning Results		
Lecturing	(*)Exame teórico	20	B7 B14	C16	
Problem solving	(*)Exame práctico	30	B7	C16	D6
Short answer tests	(*)Proba tipo test	10	B7	C16	
Laboratory practice	(*)Traballo práctico	40	B7 B14	C16	D6 D8 D9

#### Other comments on the Evaluation

#### Sources of information

##### Basic Bibliography

##### Complementary Bibliography

BOSQUE SENDRA, J, **Sistemas de Información Geográfica.**, 2004

CHUVIECO, E., **Fundamentos de Teledetección Espacial.**, Rialp, 2000

MUÑOZ SAN EMETERIO, C, **Problemas básicos de Topografía.**, Ed Bellisco., 2005

SANJOSÉ BLASCO, JJ, **Topografía para estudios de grado.**, Bellisco, 2004

WOLF & BRINKER., **Topografía**, Alfaomega, 2008

#### Recommendations