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				
Coordinator	Lorenzo Cimadevila, Henrique			
Lecturers	Lorenzo Cimadevila, Henrique			
E-mail	hlorenzo@uvigo.es			
Web	http://faitic.uvigo.es/			
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	
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
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

2R. 2018 Knowledge and understanding of the disciplines of engineering of the his speciality, to the necessary level to purchase the rest of the competitions of the qualifications, including notions of the last advances.

3R. 2018 Be conscious of the multidisciplinary context of the engineering.

4R. 2018 Capacity to #analyze products, processes and complex systems in the his field of study; choose and apply analytical methods, of calculation and experimental *relevantes of form *relevante and interpret correctly the results of these analyses.

5R. 2018 Capacity to identify, formulate and resolve problems of engineering in the his speciality; choose and apply analytical methods, of calculation and experiments properly established; Recognize the importance of the social restrictions, of health and security, environmental, economic and industrial.

7R. 2018 Capacity of the project using any knowledges advanced of the his speciality in engineering.

8R. 2018 Capacity to realize bibliographic researches, consult and use databases and other sources of information with discretion, to realize @simulación and analysis with the objective to realize investigations on technical subjects of the his speciality.

9R. 2018 Capacity to consult and apply codes of good practices and security of the his speciality.

10R. 2018 Capacity and capacity to project and realize experimental investigations, interpret results and obtain conclusions in the his field of study.

11R. 2018 Understanding of the techniques and methods of analysis, project and applicable investigation and his limitations within the scope of the his speciality.

13R. 2018 Knowledge of the application of materials, teams and tools, technological processes and of engineering and his limitations within the scope of the his speciality.

15R. 2018 Knowledge of the social implications, of health and security, environmental, economic and @industrial of the practice in engineering.

20R. 2018 Capacity to work effectively in national and international contexts, individually and in team, and cooperate with the engineers and people of other disciplines.

21R. 2018 Capacity to recognize the need of a continuous training and realize this activity of independent way during his professional life.

22R. 2018 Capacity to be to the day of the scientific and technological news.

B6	C1	D5
B13	C16	D6
B14		D8
		D9
		D10

Contents

Topic	
Topography	- Introduction to Geodesy and Cartography - Instruments - Methods: radiation, itineraries, intersecting - Stake
Remote sensing	- Physical fundamentals - Sensors and Platforms - Digital image processing - Applications
Geographic information systems	- SIX concept - Models and Data Structures - Vector GIS - SIG raster - Insert digital terrain modes

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 practical	10	20	30
Practices through ICT	16	32	48
Lecturing	20	40	60
Problem and/or exercise solving	1	0	1
Laboratory practice	3	0	3
Report of practices, practicum and external 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

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 practical	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.).
Practices through ICT	Activities application of knowledge to specific situations, and the acquisition of basic skills and procedural matters related to the object of study, which are held in computer rooms.
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 assistance

Methodologies	Description
Lecturing	.
Problem solving	.
Seminars	.
Laboratory practical	.

Tests	Description
Report of practices, practicum and external practices	.

Assessment

	Description	Qualification	Training and Learning Results		
Lecturing	Exame teórico	20	B14	C16	
Problem solving	Exame práctico	30		C16	D6
Problem and/or exercise solving	Proba tipo test	10		C16	
Laboratory practice	Traballo práctico	40	B14	C16	D6 D8 D9

Other comments on the Evaluation

Primeira Convocatoria: venres, 29 de maio de 2020, 10:00 Horas

Segunda Convocatoria: xoves, 9 de xullo de 2020, 10:00 Horas

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 estudos de grado.**, Bellisco, 2004
WOLF & BRINKER., **Topografía**, Alfaomega, 2008

Recommendations

Contingency plan

Description

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

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

* Teaching methodologies modified

* Non-attendance mechanisms for student attention (tutoring)

* Modifications (if applicable) of the contents

* Additional bibliography to facilitate self-learning

* Other modifications

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

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

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

* New tests

* Additional Information