



UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: FORESTRY MANAGEMENT SYSTEMS

Type: ELECTIVE

Degree: 365 - UNDERGRADUATE DEGREE PROGRAMME IN FOREST AND ENVIRONMENTAL ENGINEERING

Center: 601 - E.T.S. AGRICULTURAL ENGINEERS AND MOUNTS AB

Year: 4

Main language: Spanish

Use of additional languages:

Web site:

Code: 62339

ECTS credits: 4.5

Academic year: 2022-23

Group(s): 10

Duration: First quarter

Second language: English

English Friendly: Y

Bilingual: N

Lecturer: MANUEL ESTEBAN LUCAS BORJA - Group(s): 10

Building/Office	Department	Phone number	Email	Office hours
ETS Ingenieros Agrónomos y de Montes. Edificio Manuel Alonso Peña. Planta alta, 1º módulo.	CIENCIA Y TECNOLOGÍA AGROFORESTAL Y GENÉTICA	926053400	manuelesteban.lucas@uclm.es	

2. Pre-Requisites

It is recommended that students have previously acquired knowledge in specific subjects of the Degree in Forestry and Natural Environment Engineering (GIFMN). Geographic information systems are a tool that most of the disciplines taught in the GIFMN have at their disposal for the proper development and performance of professional activity in that area.

3. Justification in the curriculum, relation to other subjects and to the profession

Geographical Information Systems (GIS) specify a set of procedures on a descriptive database of real-world objects that are graphically represented and that are susceptible to some form of measurement with respect to their size and dimension relative to the earth's surface. Their greatest usefulness lies in the fact that GIS have a great capacity to build models or representations of the real world from digital databases, thanks to the application of specific procedures that generate even more information for analysis. Therefore, they constitute a basic and very useful tool in everything related to the management of natural and forest resources, since through their use, more in-depth analyses and a better study of environmental and forest parameters can be carried out. Therefore, GIS represents a subject strongly linked to everything related to environmental and forest management and it is undoubtedly an important subject in the new curricula and new degrees of the GRADUATE studies in FOREST AND NATURAL ENGINEERING (GIFMN). This subject requires many other basic support disciplines (due to its interdisciplinary nature), as well as the knowledge of other more specific and specialized subjects related to:

1ST COURSE:

- Graphic expression

2ND COURSE

- Soil science and climatology

- Environmental Impact Assessment

- Forest Ecology

- Cartographic engineering and remote sensing

- Geobotany

3RD COURSE

- Forestry

- Hydrological and forest restoration

- Forest Inventory

- Gardening and landscaping

4TH COURSE

- Reforestation

- Projects and territorial planning

- Forest management and certification

- Forest Fires

4. Degree competences achieved in this course

Course competences

Code	Description
E41	Knowledge of complementary subjects oriented to a certain specialization of open, multidisciplinary character and with direct application in the professional field of a Forestry and Environment Engineer.
G01	Knowledge of foreign language
G03	Oral and written communication
G04	Analysis and synthesis capacity
G05	Organizational and planning skills
G07	Problem solving
G10	Teamwork

5. Objectives or Learning Outcomes

Course learning outcomes

Description

To complement the basic and specific training aimed at a certain open, multidisciplinary specialization with direct application in the professional field. Identification and use of emerging technologies within the field of Forestry and Environmental Engineering
To acquire knowledge and skills in the use of specific tools that provide the student with a greater operational capacity of the knowledge acquired.

6. Units / Contents

Unit 1: Sustainable Forest Management. Support tools for forest planning and management

Unit 2: Introduction to GIS. Available software analysis: gvSIG, Qgis, Arcmap. Capture and organization of geographic information. Structure of a GIS. Raster and vector information

Unit 3: Capture and organization of geographic information. Structure of a GIS. Raster and vector information

Unit 4: Data storage. Organization and structure, georeferenced databases.

Unit 5: Practical applications of the GIS in the forest area. Introduction

Unit 6: GIS applications in the field of forest planning and management

Unit 7: Practical cases: GIS and forest planning and management. GIS applied to forest inventory. GIS applied to environmental impact assessment. GIS applied to the management of protected flora and fauna. GIS applied to the management of protected natural areas. GIS applied to hydrological management and planning. GIS applied to the management of forests and forestry. GIS applied to hunting management. GIS applied to forest fire management. Other GIS applications in the forestry field

ADDITIONAL COMMENTS, REMARKS

The course has an eminently practical character and all the theory that appears in the subject will be linked with practical cases related to the forest field

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	G01 G03 G04 G05 G07 G10	0.59	15.93	Y	N	
Class Attendance (practical) [ON-SITE]	Combination of methods	G01 G03 G04 G05 G07 G10	0.78	21.06	Y	N	
Group tutoring sessions [ON-SITE]	Combination of methods	G01 G03 G04 G05 G07 G10	0.15	4.05	Y	N	
Progress test [ON-SITE]	Assessment tests	G01 G03 G04 G05 G07 G10	0.15	4.05	Y	Y	
Writing of reports or projects [OFF-SITE]	Combination of methods	G01 G03 G04 G05 G07 G10	2.83	76.41	Y	Y	
Total:			4.5	121.5			
Total credits of in-class work: 1.67			Total class time hours: 45.09				
Total credits of out of class work: 2.83			Total hours of out of class work: 76.41				

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Theoretical exam	40.00%	40.00%	
Practicum and practical activities reports assessment	50.00%	60.00%	
Assessment of active participation	10.00%	0.00%	
Total:	100.00%	100.00%	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

Among the evaluation criteria, the following stand out

- 1) Knowledge of Geographic Information Systems
- 2) The development and analysis of geographical information
- 3) Application of Geographic Information Systems to forest and environmental management

Non-continuous evaluation:

Evaluation criteria not defined

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	hours
Unit 1 (de 7): Sustainable Forest Management. Support tools for forest planning and management	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	7
Class Attendance (practical) [PRESENCIAL][Combination of methods]	4
Writing of reports or projects [AUTÓNOMA][Combination of methods]	8.5

Unit 2 (de 7): Introduction to GIS. Available software analysis: gvSIG, Qgis, Arcmap. Capture and organization of geographic information. Structure of a GIS. Raster and vector information	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	1
Class Attendance (practical) [PRESENCIAL][Combination of methods]	2
Unit 3 (de 7): Capture and organization of geographic information. Structure of a GIS. Raster and vector information	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	1
Class Attendance (practical) [PRESENCIAL][Combination of methods]	2
Writing of reports or projects [AUTÓNOMA][Combination of methods]	8.6
Unit 4 (de 7): Data storage. Organization and structure, georeferenced databases.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	1
Class Attendance (practical) [PRESENCIAL][Combination of methods]	2
Writing of reports or projects [AUTÓNOMA][Combination of methods]	8.5
Unit 5 (de 7): Practical applications of the GIS in the forest area. Introduction	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	1
Class Attendance (practical) [PRESENCIAL][Combination of methods]	3
Writing of reports or projects [AUTÓNOMA][Combination of methods]	8.5
Unit 6 (de 7): GIS applications in the field of forest planning and management	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Class Attendance (practical) [PRESENCIAL][Combination of methods]	2
Writing of reports or projects [AUTÓNOMA][Combination of methods]	8.5
Unit 7 (de 7): Practical cases: GIS and forest planning and management. GIS applied to forest inventory. GIS applied to environmental impact assessment. GIS applied to the management of protected flora and fauna. GIS applied to the management of protected natural areas. GIS applied to hydrological management and planning. GIS applied to the management of forests and forestry. GIS applied to hunting management. GIS applied to forest fire management. Other GIS applications in the forestry field	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	1
Class Attendance (practical) [PRESENCIAL][Combination of methods]	6
Group tutoring sessions [PRESENCIAL][Combination of methods]	4
Progress test [PRESENCIAL][Assessment tests]	4
Writing of reports or projects [AUTÓNOMA][Combination of methods]	33.9
Global activity	
Activities	hours
Class Attendance (practical) [PRESENCIAL][Combination of methods]	21
Group tutoring sessions [PRESENCIAL][Combination of methods]	4
Progress test [PRESENCIAL][Assessment tests]	4
Writing of reports or projects [AUTÓNOMA][Combination of methods]	76.5
Class Attendance (theory) [PRESENCIAL][Lectures]	14
Total horas: 119.5	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Bosque Sendra, Joquin	Sistemas de Información Geográfica	Rialp		84-321-2922-4	1997	
Demers, Michael N.	Fundamentals of Geographic Information Systems	John Wiley & Sons		978-0471142843	2008	
Gutiérrez Puebla, Joaquín; Gould, Michael	SIG: Sistemas de Información Geográfica	Sintesis		84-7738-246-8	1994	
Olaya, Victor	Sistemas de información geográfica	Bubok		No registrado	2012	Libro gratuito y de libre acceso
Burroughs, Peter; McDonnell, Rachel	Principles of Geographic Information Systems	Oxford		0-19-8-26336-3	1998	