Teaching Guide				
Identifying Data				2024/25
Subject (*)	Ecosystemic Services and Ecohydraulics		Code	632549022
Study programme	Máster Universitario en Xestión Sostible da Auga			
Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	2nd four-month period	First	Optional	3
Language	Spanish			
Teaching method	Face-to-face			
Prerequisites				
Department	Enxeñaría Civil			
Coordinador	Vázquez González, Ana María	E-mail	ana.maria.vazquez@udc.es	
Lecturers	Pena Mosquera, Luis Vázquez González, Ana María	E-mail	luis.pena@udc.es ana.maria.vazquez@udc.es	
Web				
General description	En esta asignatura se abarcarán los siguientes puntos: Servicios ecosistémicos de los ríos y las aguas de transición. Efectos ambientales de las obras hidráulicas. Restauración de ríos. Implicaciones en la Instrucción de Planificación Hidrológica. Acondicionamiento de obras hidráulicas. Caudales ambientales. Obras para garantizar la continuidad de los ecosistemas acuáticos. Soluciones basadas en la naturaleza como complemento o alternativa a obras hidráulicas			

Study programme competences / results	
Code	Study programme competences / results
A1	CON1 Describe the principles, concepts, and dimensions that encompass integrated water resources management and its role as a key tool for achieving water security and advancing the associated Sustainable Development Goals (SDGs). Identify problems related to water development, use, and access. Identify and compare water legislation at the European, national, regional, and local levels, as well as interpret conceptual frameworks on sustainable development and their application to the water sector, with a specific focus on the SDGs. Provide tools to explain the economics of water. Enumerate aspects of public taxation that may be relevant in water management.
A3	CON3 Explain the foundations of chemistry, biology, and morphology of continental aquatic ecosystems. Provide the common methodology of the EU for assessing the status of water bodies and its adaptation to different territorial contexts. Identify models for assessing pressures and impacts on water bodies, understanding their opportunities and limitations. Suggest solutions for the maintenance and improvement of the status of water bodies across their different quality elements. Identify bioindicators.
B1	HAB1 Use and compare water legislation and conceptual frameworks related to sustainable development. Operate with tools that allow estimating economic variables (macro and micro) related to water, and employ the tools to apply appropriate taxation and cost policies to water
B4	HAB4 Analyze the European Union's Water Framework Directive and Floods Directive, their technical implications, and their implementation through hydrological planning. Utilize computer tools for problem-solving related to water management within the framework of both directives. Develop measurements and analysis of hydrologically relevant data and data related to the state of water bodies. Evaluate the effect of urban use on the watershed and analyze the consequences of discharging water (treated or untreated) into receiving water bodies. Additionally, develop strategies to protect areas of surface water and groundwater generation within watersheds, based on the principle of recognizing and enhancing ecosystem services.
C1	COM1 Validate, evaluate, and adapt water legislation for a specific situation. Synthesize the economic variables involved in a problem related to water management. Adapt conceptual frameworks, particularly the Sustainable Development Goals (SDGs), to a specific problem
C5	COM5 Evaluate the impact of floods and droughts and propose strategies to mitigate them in accordance with legislation, applying new technologies. Propose sustainable and socially acceptable solutions.

Learning outcomes

Learning outcomes	Study programme competences / results		
	AJ1		
			CJ1
		BJ4	
		BJ1	
			CJ5
	AJ3		

Contents	
Topic	Sub-topic
Efectos ambientales de las obras hidráulicas.	Efectos ambientales de las obras hidráulicas.
Restauración de ríos. Implicaciones en la Instrucción de Planificación Hidrológica.	Restauración de ríos. Implicaciones en la Instrucción de Planificación Hidrológica.
Acondicionamiento de obras hidráulicas.	Acondicionamiento de obras hidráulicas.
Caudales ambientales.	Caudales ambientales.
Obras para garantizar la continuidad de los ecosistemas acuáticos.	Soluciones basadas en la naturaleza como complemento o alternativa a obras hidráulicas.
Introducción a los Servicios Ecosistémicos	Definición y Conceptos Básicos Clasificación de los servicios ecosistémicos: Definición y ejemplos Conectividad
Servicios Ecosistémicos y Cambio Climático	Impactos del Cambio Climático Adaptación y Mitigación
Participación Comunitaria y Educación Ambiental	Importancia de la Participación Comunitaria Educación y Sensibilización
Infraestructura Verde y Azul	Definición y tipos de infraestructura verde y azul Beneficios multifuncionales Estudio de casos

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Field trip	B4 C5	2.5	0	2.5
Oral presentation	B1 C1	0.5	2	2.5
Supervised projects	A1 A3 B1 B4 C1 C5	2	10	12
Guest lecture / keynote speech	A1 A3	11	42	53
Personalized attention		5	0	5
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Field trip	
Oral presentation	
Supervised projects	
Guest lecture / keynote speech	

Personalized attention

Methodologies	Description
Supervised projects Guest lecture / keynote speech Oral presentation	Se aclaran las dudas suscitadas por las explicaciones y se proporciona información complementaria para la mayor profundización en los aspectos de interés para la materia

Assessment			
Methodologies	Competencies / Results	Description	**Qualification**
Supervised projects	A1 A3 B1 B4 C1 C5	O alumnado terá que elaborar 2 traballo sobre a docencia impartida que serán expostos na clase para o resto do alumnado e profesorado	75
Oral presentation	B1 C1	El alumnado presentará na clase, os traballos tutelados elaborados	25

Assessment comments
Respecto ao alumnado con recoñecemento de dedicación a tempo parcial e dispensa académica, todos os aspectos relacionados con ?dispensa académica?, ?dedicación ao estudo?, ?permanencia? e ?fraude académica? rexeranse de acordo coa normativa académica da UDC

Sources of information	
Basic	Clay, C.H. (1995). Design of fishways and other fish facilities. Lewis Publisher, Boca Raton, Florida.Larinier, M., Porcher, J.P., Travede, F., Gosset, C. (1998). Passes à poissons. Expertise conception des ouvrages de franchissement. Conseil Supérieur De La Pêche, Paris. FranceCongress, August, 2003. Theme C. p 425-432. Thessaloniki. Greece.Odeh, M. (1999). Innovations in fish passage technology. American fisheries Society, Bethesada, Maryland.
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Other comments

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.