Teaching Guide				
Identifying Data				2023/24
Subject (*)	BIM Methodology		Code	730547017
Study programme	Máster Universitario en Eficiencia Enerxética e Sustentabilidade			
Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	2nd four-month period	First	Optional	3
Language	SpanishGalician			
Teaching method	Face-to-face			
Prerequisites				
Department	Enxeñaría Industrial			
Coordinador	López Vázquez, José Antonio	E-mail	jose.lopez@udc.es	
Lecturers	Fernández Ibáñez, María Isabel López Vázquez, José Antonio	E-mail	isabel.fibanez@udc.es jose.lopez@udc.es	
Web				
General description	BIM (Building Information Modeling) Is a methodology of work colaborativa for the management of projects through a maqueta digital. This conforms a big database that allows to manage the elements that form part of the edificación during all the cycle of life of the same. On the information contained in the maqueta digital can make simulations for the comprobación of the operation of the installations, to know his energetic behaviour, to coordinate the works of construction, etc.			

Study programme competences / results	
Code	Study programme competences / results
A13	CE13 - Analyze, apply and optimize energy use systems
A17	CE17 - Apply the BIM methodology for sustainability and energy efficiency
B3	CB8 - That students are able to integrate knowledge and face the complexity of formulating judgments based on information that, being incomplete or limited, includes reflections on the social and ethical responsibilities linked to the application of their knowledge and judgments
B5	CB10 - That students have the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous
B9	CG4 - Extract, interpret and process information, from different sources, for use in the study and analysis
B11	CG6 - Acquire new knowledge and skills related to the professional field of the master's degree
B16	CG11 - Evaluate the application of emerging technologies in the field of energy and the environment
C3	CT3 - Use the basic tools of information and communication technologies (ICT) necessary for the exercise of their profession and for learning throughout their lives
C7	CT7 - Develop the ability to work in interdisciplinary or transdisciplinary teams, to offer proposals that contribute to sustainable environmental, economic, political and social development
C8	CT8 - Value the importance of research, innovation and technological development in the socioeconomic and cultural progress of society

Learning outcomes			
Learning outcomes	Study programme competences / results		
The student will be able to work in a BIM environment and generate graphic documentation and data reports	AC13 AC17	BC3 BC5 BC9 BC11 BC16	CC3 CC7 CC8

Contents	
Topic	Sub-topic

Fundamentals of the BIM methodology. Creation of BIM models. Interoperability and collaborative work in a BIM environment.	

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Guest lecture / keynote speech	B5 B9 B11 B16 C3 C7	7	9	16
ICT practicals	A13 A17 B3 B5 B9 B16 C3 C8	7	22.5	29.5
Supervised projects	A13 A17 B3 B5 B9 B16 C3 C8	7	22.5	29.5
Personalized attention		0	0	0
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Guest lecture / keynote speech	The matter will give in theoretical modules-practical. They will present the basic concepts of each subject by means of classes expositivas with the purpose to transmit knowledges and favour the learning.
ICT practicals	The practices will make with the program REVIT with the aim to familiarise with the methodology BIM.
Supervised projects	The practical works will make applying the methodology BIM (Building Information Modeling).

Personalized attention	
Methodologies	Description
Supervised projects	The profesorado will attend the doubts that can arise during the realisation of the works.

Assessment			
Methodologies	Competencies / Results	Description	**Qualification**
Supervised projects	A13 A17 B3 B5 B9 B16 C3 C8	Valóranse os traballos realizados polo estudantado en horas presenciais e non presenciais.	50
ICT practicals	A13 A17 B3 B5 B9 B16 C3 C8	Valóranse as prácticas realizadas polo estudantado en horas presenciais e non presenciais.	50

Assessment comments
The criteria and the activities of evaluation will be the same for the 1ª and 2ª opportunity and for the extraordinary announcements. It willconsider as ?No presented? (NP) thatstudent that, being enrolled in a matter, no concurriera to the distinctactivities of evaluation that establish for the academic course. Inabsence of specific regulation for each degree, will consider that it will have to be described as ?Nopresented?: the) when it did notcomplete the process of continuous evaluation, in the conditions that appear inthe educational guide, or b) when it donot present to the proof of the officialperiod of evaluation. The fraudulentrealisation of the probas or activities of evaluation, once checked, willinvolve directly the qualification of suspense in the announcement in that itcommit : the/the student will be described with ?suspense? (numerical note 0)in the corresponding announcement of the academic course, so much if thecommission of the fault produces at theearliest opportunity as in the second. For this, will proceed to modify his qualification in the record offirst opportunity, if it was necessary.

Sources of information

Basic	Es.BIMhttps://www.esbim.es/es-bim/Es.Bim es un grupo abierto a todos los agentes implicados (administraciones, ingenierías, constructoras, universidades, profesionales?) cuyo objetivo es la implantación de BIM en España.Building SMART Spainhttps://www.buildingsmart.es/BuildingSMART Spanish Chapter es una asociación sin ánimo de lucro cuyo principal objetivo es fomentar la eficacia en el sector de la construcción a través del uso de estándares abiertos de interoperabilidad sobre BIM (Building Information Modeling) para alcanzar nuevos niveles en reducción de costes y tiempos de ejecución y aumento de la calidad.BIMcommunitywww.bimcommunity.comEl principal recurso que podrás encontrar en esta web es INFORMACIÓN en entorno BIM: software, aplicaciones móviles, guías, servidores BIM, libros, componentes BIM, etc. Y por supuesto, links a las principales webs que ofrecen todos estos recursos.
Complementary	bimobjectwww.bimobject.comBIM Object es una de las más potentes webs de descargas gratuitas de objetos BIM. Una vez registrado, puedes descargar todo lo que quieras. También puedes descargarte componentes BIM para ArchiCAD, Allplan, Rhinoceros, Sketchup, etc.polantiswww.polantis.comPolantis es una biblioteca BIM. En ella podrás encontrar multitud de objetos BIM en multitud de formatos, compatibles con los principales softwares de arquitectura actuales: Revit, Allplan, Rhinoceros, ArchiCAD, Autocad, Artlantis, Microstation, etc. Y por supuesto, en formato IFC.bimstorehttps://www.bimstore.co.uk/Es una librería BIM para Revit, además de una fábrica de objetos BIM. Bimstore Eye, su visor de realidad aumentada, te permite ver en 3D los componentes BIM de los fabricantes.

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
Recommendations Sostenibilidade Environment:Take into account stop the delivery of the documentary works that realize in this subject:1.1. It Will request in virtual format and/or bear informático1.2. It Will realize through the Virtual Campus, in digital format without need to print themRecommendations in matter of equality of gender and respect to the diversity: As it collects in the distinct rules of application for the university teaching will have to incorporate the perspective of gender in this matter (will use language no sexista, will use bibliography of authors of both sexes, propiciará the intervention in class of students and students?).It will work to identify and modify damages and attitudes sexist, and will influence in the surroundings to modify them and boost values of respect and equality. Will have to detect situations of discrimination by reason of gender and will propose actions and measures to correct them. It will facilitate the full integration of the students that by physical reason, sensory, psychic or socioculturales, experience difficulties to an ideal access, egalitarian and profitable to the university life.