

**1. General information****Course:** APPLIED ARCHITECTURE ADVANCED ARTWORK**Type:** ELECTIVE**Degree:** 315 - UNDERGRADUATE DEGREE IN BUILDING ENGINEERING**Center:** 308 - SCHOOL POLYTECHNIC OF CUENCA**Year:** 4**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 59338**ECTS credits:** 4.5**Academic year:** 2019-20**Group(s):** 30**Duration:** C2**Second language:****English Friendly:** Y**Bilingual:** N**Lecturer:** VICTOR JOSE PEREZ ANDREU - Group(s): 30

Building/Office	Department	Phone number	Email	Office hours
Escuela Politécnica de Cuenca/Despacho 1.11	INGENIERÍA CIVIL Y DE LA EDIFICACIÓN	4810	victor.perez@uclm.es	Según publicación al inicio del semestre

Lecturer: JOSE LUIS SERRANO CANTO - Group(s): 30

Building/Office	Department	Phone number	Email	Office hours
Escuela Politécnica de Cuenca/Despacho 1.11	INGENIERÍA CIVIL Y DE LA EDIFICACIÓN	4850	joseluis.serrano@uclm.es	Según publicación al inicio del semestre

2. Pre-Requisites

It is advisable to have passed the subjects of second and third year.

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

The Building Information Modeling (BIM) technology is based on the use of infographic models as a support for the different types of information necessary for the management of buildings throughout their life cycles. Its use is imposed incrementally in all sectors of the building to determine a greater performance and efficiency in all processes. The subject provides the student with a space to deepen the study and experimentation of the diverse range of tools, methodologies and BIM procedures.

4. Degree competences achieved in this course**Course competences**

Code	Description
E42	Knowledge of complementary subjects, both technological and humanistic, oriented to a certain specialization of open, multidisciplinary nature and with direct application in the professional field of a Building Engineer, open and sensitive to changes and new professional challenges that may arise.
G01	Ability for analysis and synthesis
G03	Ability to manage information
G05	Decision making
G06	Critical thinking
G07	Teamwork
G12	Autonomous learning
G21	Command of Information and Communication Technologies (ICT)
G22	Correct oral and written communication

5. Objectives or Learning Outcomes**Course learning outcomes****Description**

Evaluation of the socio-environmental impact of the building to become aware of working in an integrated field, being sensitive to the possibility to participate in multidisciplinary initiatives with application of their specific professional capacity.

Acquisition of practical skills directly in companies or institutions.

Acquire knowledge and skill in the use of computer tools that give the student a greater operational capacity of the knowledge acquired. Possibility of autonomously expanding these advances through the search for new applications or with the development of those already acquired.

Complement the basic and specific training oriented to a certain specialization of open, multidisciplinary nature and with direct application in the professional field.

6. Units / Contents**Unit 1: BIM workflows**

Unit 1.1 Interoperability of Graphisoft and Autodesk tools

Unit 2: BIM Modeling

Unit 2.1 Advanced use of Archicad and Revit in building projects

Unit 3: Use of point clouds

Unit 3.1 Fundamentals for the creation, use and management of point clouds

Unit 4: Applications of point clouds in building projects

Unit 4.1 Applications of point clouds in building projects

7. Activities, Units/Modules and Methodology								
Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	R	Description
Class Attendance (theory) [ON-SITE]	Lectures	E42 G03 G06 G21	0.52	13	N	-	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	E42 G01 G03 G05 G06 G21 G22	0.26	6.5	N	-	-	
Computer room practice [ON-SITE]	Guided or supervised work	E42 G01 G03 G05 G06 G07 G12	0.52	13	Y	N	N	
Group tutoring sessions [ON-SITE]	Group tutoring sessions	G01 G05 G06	0.26	6.5	N	-	-	
Progress test [ON-SITE]	Assessment tests	E42 G01 G05 G06 G12	0.04	1	Y	N	N	
Project or Topic Presentations [ON-SITE]	Assessment tests	E42 G01 G03 G05 G06 G07 G12 G21 G22	0.2	5	Y	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	E42 G01 G03 G06 G12 G22	1.3	32.5	N	-	-	
Writing of reports or projects [OFF-SITE]	Self-study	E42 G01 G03 G05 G06 G07 G12 G21 G22	1.4	35	Y	Y	Y	
Total:			4.5	112.5				
Total credits of in-class work: 1.8			Total class time hours: 45					
Total credits of out of class work: 2.7			Total hours of out of class work: 67.5					

As: Assessable training activity

Com: Training activity of compulsory overcoming

R: Rescheduling training activity

8. Evaluation criteria and Grading System			
Evaluation System	Grading System		Description
	Face-to-Face	Self-Study Student	
Progress Tests	10.00%	0.00%	
Assessment of activities done in the computer labs	10.00%	0.00%	
Projects	60.00%	0.00%	
Oral presentations assessment	20.00%	0.00%	
Total:	100.00%	0.00%	

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Unit 1 (de 4): BIM workflows	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1
Computer room practice [PRESENCIAL][Guided or supervised work]	2
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
Progress test [PRESENCIAL][Assessment tests]	.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	16.25
Unit 2 (de 4): BIM Modeling	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2.5
Computer room practice [PRESENCIAL][Guided or supervised work]	5
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	2.5
Project or Topic Presentations [PRESENCIAL][Assessment tests]	2.5
Writing of reports or projects [AUTÓNOMA][Self-study]	17.5
Unit 3 (de 4): Use of point clouds	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1
Computer room practice [PRESENCIAL][Guided or supervised work]	2
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	1
Progress test [PRESENCIAL][Assessment tests]	.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	16.25
Unit 4 (de 4): Applications of point clouds in building projects	

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Computer room practice [PRESENCIAL][Guided or supervised work]	4
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	2
Project or Topic Presentations [PRESENCIAL][Assessment tests]	2.5
Writing of reports or projects [AUTÓNOMA][Self-study]	17.5
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	13
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	6.5
Computer room practice [PRESENCIAL][Guided or supervised work]	13
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	6.5
Progress test [PRESENCIAL][Assessment tests]	1
Project or Topic Presentations [PRESENCIAL][Assessment tests]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	32.5
Writing of reports or projects [AUTÓNOMA][Self-study]	35
Total horas: 112.5	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Ministerio de Fomento	es.BIM	Ministerio de Fomento				Plataforma implantación BIM en España
Meshlab	https://www.esbim.es/es-bim/estrategia/	Meshlab				Referencias
Autodesk	http://www.meshlab.net/#support	Autodesk				Recursos didácticos y licencias educacionales.
Graphisoft	RECURSOS EDUCATIVOS DE AUTODESK	Graphisoft				Recursos didácticos y licencias educacionales.
UPV	http://www.autodesk.es/adsk/servlet/item?siteID=455755&id=9868777	UPV	Valencia			Acceso a actas de congresos EUBIM 2012-19
Agyssoft	RECURSOS EDUCATIVOS DE ARCHICAD	Agisoft				Community, Showcase, Articles, Forum
	http://www.eubim.com/					
	https://www.agisoft.com/					