

**1. General information****Course:** URBAN MANAGEMENT AND URBAN CONSTRUCTIONS**Code:** 59328**Type:** CORE COURSE**ECTS credits:** 6**Degree:** 315 - UNDERGRADUATE DEGREE IN BUILDING ENGINEERING**Academic year:** 2021-22**Center:** 308 - SCHOOL POLYTECHNIC OF CUENCA**Group(s):** 30**Year:** 4**Duration:** First semester**Main language:** Spanish**Second language:****Use of additional languages:****English Friendly:** Y**Web site:****Bilingual:** N

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2. Pre-Requisites

Command of spreadsheets, Autocad, Word and PowerPoint

- Basic knowledge of calculus, statistics and geometry."

1. With regard to the "Urban Management" section:

- Students should be able to explore Land Planning Law.

- Students should be able to produce graphic representations in computerised form to perform execute any proposal of graphic exercises. To that end, it is advisable that students are familiar with computer-aided design. In pursuance of current legislation, any documents of an urban nature must be presented in SIG format.

2. In relation to the part "Urban Constructions":

- The same software knowledge.
- General prior knowledge in the field of construction that will familiarize you with the executions of the urbanization.
- Knowledge of standards, regulations and sizing procedures dealt with in the courses Building Facilities I and Building Facilities II.

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

In order for Construction Engineers to achieve all-round training, they must be familiar with essential concepts of legal urban reality, as building involves a site, a location that is in turn regulated by Land Planning Regulations (Planning Figures, land planning standards, Urban Valuations...). On the other hand, urban constructions are another major field where construction engineers of the future will be able to deploy their abilities; therefore, it is essential that this subject is part of their training.

During their career, Construction Engineers also work in collaboration with other professionals (Town Planners, Architects, Lawyers, Developers...who also play an important role in the field of town planning) and serve several Public Authorities (City Councils, Provincial Councils, Autonomous Communities) and Social and Private Entities, etc.

This course will mainly be linked to Law, Urban Geography and, from an instrumental point of view, to computer-aided design, and obviously to any courses related to construction, health and safety, for the following reasons: it is linked to the former as it is another essential portion of construction, and it is linked to the latter as students should know what actions should be performed.

On the other hand, the urban constructions are another one of the great fields in which the future building engineers will be able to unfold their competitions, which makes indispensable the presence of this body of knowledge in their formation.

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

Code	Description
E14	Knowledge of the historical evolution of the techniques and constructive elements and the structural systems that have given rise to the stylistic forms. Ability to identify the elements and construction systems, define their function and compatibility, and their implementation in the

E15	construction process. Formulate and resolve constructive details.
E16	Knowledge of the specific control procedures of the material execution of the construction work.
E17	Ability to assess the causes and manifestations of damage in buildings, propose solutions to avoid or correct pathologies, and analyze the life cycle of the elements and construction systems.
E18	Aptitude to take part in the rehabilitation of buildings and in the restoration and conservation of the built heritage.
E19	Ability to prepare manuals and maintenance plans and manage their implementation in the building.
E23	Aptitude for the pre-measure, design, calculation and verification of structures and to direct their material execution.
E29	Ability to analyze, design and execute solutions that facilitate universal accessibility in buildings and their surroundings.
E34	Knowledge of the regulatory framework of urban planning management and discipline.
G01	Ability for analysis and synthesis
G02	Organization and planning ability
G03	Ability to manage information
G04	Problem resolution
G05	Decision making
G06	Critical thinking
G07	Teamwork
G08	Teamwork in an interdisciplinary environment
G12	Autonomous learning
G14	Conflict management and negotiation
G15	Sensitivity to environmental issues
G16	Creativity and innovation
G18	Initiative and entrepreneurial spirit
G19	Motivation for quality
G21	Command of Information and Communication Technologies (ICT)
G22	Correct oral and written communication
G23	Ethical commitment and professional ethics

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Knowledge of the efficiency of machines in their usage, their costs and amortizations, their components, forms of work, safety standards and market variants.

Preparation of manuals and maintenance plans. Manage their implementation in buildings.

Analysis, design and execution of solutions for the universal accessibility of buildings.

Intervention in the rehabilitation of buildings and the restoration and conservation of the built heritage.

Manage market information, corresponding to currently constructive systems.

Improve and optimize the use of the machines in the works.

Propose and resolve constructive details appropriate to previous requirements.

Physical and mechanical characteristics that define the construction systems.

Understanding the evolution of construction systems and their application to old or modern works.

Understanding the way of working of the constructive elements, defining their function and compatibility.

Programming and organization of construction teams.

Implementation of the construction elements and systems.

Building Sustainability: Execution and operation.

Understanding the operation of urbanization services.

Analyze the usable life cycle of the elements and construction systems.

Apply the impact on costs, time and security derived from the correct choice and location of the equipments.

Evaluation of the environmental impact of the building and demolition processes.

Additional outcomes

Know the mechanisms that regulate the urban transformation of the land, its urbanization and its aptitude for building.

6. Units / Contents

Unit 1: Urban management.

Unit 1.1 Bases.

Unit 1.2 Competency framework. Legislation.

Unit 1.3 Management plans and instruments.

Unit 1.4 Urban regime of land ownership.

Unit 1.5 Land classification.

Unit 1.6 Land management.

Unit 1.7 Urbanization.

Unit 1.8 Edification.

Unit 2: Urban facilities

Unit 2.1 Urban water supply.

Unit 2.2 Drainage and sanitation.

Unit 2.3 Urban electrical facilities

Unit 2.4 Urban lighting.

Unit 2.5 Urban energy networks.

Unit 2.6 Unit practices.

Unit 3: Urban constructions.

Unit 3.1 The urbanization project.

Unit 3.2 Water supply. Material suitability. Choice and implementation. Constructive solutions.

Unit 3.3 Sanitation network. I. Material suitability. Election and commissioning. Constructive solutions.

Unit 3.4 Sanitation network. II. Material suitability. Election and commissioning. Constructive solutions.

Unit 3.5 Electrical installations. Lighting. Material suitability. Choice and implementation. Constructive solutions

Unit 3.6 Unit practices.

Unit 3.7 Gas installations and telecommunications networks. Material suitability. Choice and implementation. Constructive solutions

Unit 3.8 Construction of pavements I. Adequacy of materials. Choice and implementation. Constructive solutions

Unit 3.9 Unit practices.

ADDITIONAL COMMENTS, REMARKS

The software to be used in urban facilities practices will be EPANET, SWMM and DIALux.

7. Activities, Units/Modules and Methodology							
Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	E14 E15 E16 E17 E18 E19 E23 E29 E34 G15 G19 G22 G23	1.58	39.5	N		Theoretical-practical explanation in the classroom of the basic contents related to the different thematic blocks using the methodology of formal presentation of the contents and the use of the question technique
Computer room practice [ON-SITE]	Practical or hands-on activities	G05 G16 G19 G21	0.16	4	N		Learning and application of general programs (EXCEL) or specific to the modeling, design, analysis and / or dimensioning of facilities (EPANET, SWMM, DIALux) in urban facilities.
Writing of reports or projects [OFF-SITE]	project-based learning	E14 E15 E16 E17 E18 E19 E23 E29 E34 G01 G02 G03 G04 G05 G06 G07 G08 G14 G15 G16 G18 G19 G21 G22 G23	1.44	36	Y	N	Preparation of reports of urban constructions and facilities with a variable extension depending on what is requested in the practice statement. The plagiarism of the reports resulting from the practices will be controlled and, in the event of irregularities, Art. 9. Fraudulent performance of evaluation tests of the University of Castilla-La Mancha Student Evaluation Regulations.
Study and Exam Preparation [OFF-SITE]	Combination of methods	E14 E15 E16 E17 E23 E29 E34 G01 G02 G03 G04 G05 G06 G12 G18 G19 G21 G22	2.16	54	N		Study of the content taught in the subject. Carrying out exercises for urban constructions and installations and analysis of graphic documentation of urban projects.
Final test [ON-SITE]	Assessment tests	E15 E16 E18 E23 E29 E34 G03 G04 G05 G06 G22	0.18	4.5	Y	Y	Final exam of each thematic block taught.
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	E14 E15 E16 E17 E18 E19 E23 E29 G01 G02 G03 G04 G05 G06 G07 G08 G12 G14 G15 G16 G18 G19 G21 G22 G23	0.48	12	N		Realization of examples and problems of urban constructions and facilities.
Total:			6	150			
Total credits of in-class work: 2.4			Total class time hours: 60				
Total credits of out of class work: 3.6			Total hours of out of class work: 90				

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
Projects	39.60%	39.60%	
Final test	60.40%	60.40%	
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:

Urban management (GU)

There will be an exam that will be valued over 10 points. It will be equivalent to 100% of the qualification obtained in the part of the Urban Management agenda.

Urban Constructions (CU) and urban facilities (IU)

The reports of practices carried out during the course will be valued over 10 points. It will be equivalent to 60% of the qualification obtained in each topic dedicated to urban constructions and installations.

The grade obtained in the practical reports will be saved for other calls in case of failing the course.

There will be an exam with multiple choice questions, development and / or problems that will be valued over 10 points. It will be equivalent to 40% of the qualification obtained in the part of the Urban constructions and installations syllabus.

The qualification of each part will be given by the following expressions: $IU = 0.6 \cdot P + 0.4 \cdot E$; $CU = 0.6 \cdot P + 0.4 \cdot E$; where P is the grade obtained in the practice / s and E is the grade obtained in the exam.

Final Grade (CF)

The final grade for the course is given by the following expression:

$$CF = 0,34 \cdot GU + 0,33 \cdot CU + 0,33 \cdot IU$$

GU: Qualification of the Unit of Urban Management.

CU: Qualification of the Unit of Urban Constructions.

IU: Qualification of the Unit of Urban Facilities.

Non-continuous evaluation:

The student, who justifiably cannot attend the training activities regularly, must communicate it to the teacher of the subject at the beginning of the semester.

Urban management (GU)

There will be an exam that will be valued over 10 points. It will be equivalent to 100% of the qualification obtained in the part of the Urban Management agenda.

Urban Constructions (CU) and urban facilities (IU)

The reports of practices carried out during the course will be valued over 10 points. It will be equivalent to 60% of the qualification obtained in each topic dedicated to urban constructions and installations.

The grade obtained in the practical reports will be saved for other calls in case of failing the course.

There will be an exam with multiple choice questions, development and / or problems that will be valued over 10 points. It will be equivalent to 40% of the qualification obtained in the part of the Urban constructions and installations syllabus.

The qualification of each part will be given by the following expressions: $IU = 0.6 \cdot P + 0.4 \cdot E$; $CU = 0.6 \cdot P + 0.4 \cdot E$; where P is the grade obtained in the practice / s and E is the grade obtained in the exam.

In case of suspending the practices, an exam of the practices may be carried out on the same dates and times that are established in the official exam call.

In the exam the competences and skills contained in the practice will be evaluated.

Final Grade (CF)

The final grade for the course is given by the following expression:

$$CF = 0,34 \cdot GU + 0,33 \cdot CU + 0,33 \cdot IU$$

GU: Qualification of the Unit of Urban Management.

CU: Qualification of the Unit of Urban Constructions.

IU: Qualification of the Unit of Urban Facilities.

Specifications for the resit/retake exam:

They do not exist.

Specifications for the second resit / retake exam:

In the second resit , a global examination of the contents developed in the subject will be carried out, which will be valued out of 10 points.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
General comments about the planning: The hours assigned and temporary distribution will depend on the real hours available during the Academic Course. Rough planning, subject to possible variations due to festivities not yet specified, etc. Unit 1 will be taught first and then Unit 3. Unit 2 will be taught throughout the semester.	
Unit 1 (de 3): Urban management.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	18
Study and Exam Preparation [AUTÓNOMA][Combination of methods]	30
Final test [PRESENCIAL][Assessment tests]	2
Unit 2 (de 3): Urban facilities	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	8.5
Computer room practice [PRESENCIAL][Practical or hands-on activities]	4
Writing of reports or projects [AUTÓNOMA][project-based learning]	18
Study and Exam Preparation [AUTÓNOMA][Combination of methods]	12
Final test [PRESENCIAL][Assessment tests]	.5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	7
Unit 3 (de 3): Urban constructions.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	13
Writing of reports or projects [AUTÓNOMA][project-based learning]	18
Study and Exam Preparation [AUTÓNOMA][Combination of methods]	12
Final test [PRESENCIAL][Assessment tests]	2
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	5
Global activity	
Activities	hours
Computer room practice [PRESENCIAL][Practical or hands-on activities]	4
Writing of reports or projects [AUTÓNOMA][project-based learning]	36
Study and Exam Preparation [AUTÓNOMA][Combination of methods]	54
Final test [PRESENCIAL][Assessment tests]	4.5
Class Attendance (theory) [PRESENCIAL][Lectures]	39.5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	12

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	City	ISBN	Year	Description
Melvyn Kay	Practical hydraulics and water resources engineering - Third Edition	CRC Press			2017	
Antonio Bonet Correa	Las claves del Urbanismo					
Alabern i Valentí, Eduard	Infraestructuras urbanas : ejecución, inspección y control de las obras de urbanización, implantación y coordinación de las redes de servicios, secciones estructurales de firmes urbanos, actualización método MSV de costes de urbanización			84-930609-0-9		
J.Stéfanou	Etudes du paysage.Vers une iconologie expérimentale de l'image	SoufflesSA.Paris			1988	
José Gerardo Gómez Melero	Las licencias urbanísticas en Castilla La Mancha	Grupo Wolkers Kluwer		978-84-7052-421-92	2008	
L. Felipe Manchon y Juan A. Santamara	Recomendaciones para el proyecto y diseño del viario urbano	Ministerio de Fomento				
Maria Xalabarder Arlet	La práctica del urbanismo. Guía básica	Políticas urbanas	Barcelona	ISBN: 978-84-7426-92	2007	En términos generales, la guía responde a las preguntas de ¿qué es urbanizar?, ¿quién y cómo se ejecuta la urbanización?
	Artículos de investigación urbanística http://www.aq.upm.es/Departamentos/Urbanismo/publicaciones/ciur.html Código urbanístico de Castilla- La Mancha http://www.castillalamancha.es/gobierno/fomento/estructura/dgfvu/actuaciones/c%C3%B3digo-urban%C3%ADstico-de-castilla-la-manchaFirefoxHTML/Shell/Open/Command Espacios exteriores http://www.tectonica-online.com/ Ordenanza de Urbanización Ayuntamiento de Cuenca					
CEDEX	Guía Técnica sobre redes de saneamiento y drenaje urbano	Ministerio de Fomento				
Trapote Jaume, A.	Infraestructuras Hidráulico-Sanitarias II. Saneamiento y drenaje urbano	Publicaciones Universidad de Alicante				
Trapote Jaume, A.	Infraestructuras hidráulico-sanitarias I. Abastecimiento y distribución de agua	Publicaciones Universidad de Alicante				
Hernández Muñoz, A.; Hernández Lehmann, A.	Manual de saneamiento Uralita	Thomson-Paraninfo				
Hernández Muñoz, A.	ABASTECIMIENTO Y DISTRIBUCION DE AGUA	GARCETA GRUPO EDITORIAL				
IDAE	Guía Técnica de Eficiencia Energética en Iluminación. Alumbrado público http://www.idae.es/uploads/documentos/documentos_GT_EE_iluminacion_Alumbrado_Publico_9a40dc27.pdf	IDAE				
Ministerio de Fomento	Orden circular 36/2015 sobre criterios a aplicar en la iluminación de carreteras a cielo abierto y túneles. https://www.fomento.gob.es/NR/rdonlyres/BDE93CC1-F0A6-47D2-B722-8F6AEBB37C1D/130279/OC362015_Tomoll.pdf	Ministerio de Fomento				
Ministerio de Economía, Industria y Competitividad	Reglamento Electrotécnico para Baja Tensión y sus instrucciones técnicas complementarias (REBT) http://www.f2i2.net/legislacionseguridadindustrial/Si_Ambito.aspx?id_am=76	BOE				
José Agüera Soriano	MECÁNICA DE FLUIDOS INCOMPRESIBLES Y TURBOMÁQUINAS HIDRÁULICAS	Ciencia 3 S.L				
Hernández Muñoz, A.	SANEAMIENTO Y ALCANTARILLADO	Paraninfo				
Ministerio de Fomento	Orden circular 36/2015 sobre criterios a aplicar en la iluminación de carreteras a cielo abierto y túneles. Tomo I https://www.fomento.gob.es/NR/rdonlyres/74D556F8-A140-462F-A89D-E2B168EA95CD/130278/OC362015_TomoI.pdf	Ministerio de Fomento				
Arizmendi Barnes, J.	Instalaciones urbanas. Tomos I, II y III	Bellisco				
IDAE	SISTEMAS EFICIENTES DE REGULACIÓN Y CONTROL EN ALUMBRADO DE EXTERIORES.	IDAE				
Ministerio de Economía, Industria y Competitividad	Reglamento técnico de distribución y utilización de combustibles gaseosos y sus instrucciones técnicas complementarias ICG 01 a 11. (BOE 04.09.06) http://www.f2i2.net/legislacionseguridadindustrial/Si_Ambito.aspx?id_am=83	BOE				

Ministerio de Industria, Turismo y Comercio	Reglamento de eficiencia energética en instalaciones de alumbrado exterior y sus Instrucciones técnicas complementarias EA-01 a EA-07 (BOE BOE 19.11.08)		
	http://www.f2i2.net/legislacionseguridadindustrial/Si_Ambito.aspx?id_am=86		
Colado García, S.; Abelardo Gutiérrez, A; Carlos J. Vives, C.J.	Smart city. Hacia la gestión inteligente.	Marcombo	
Vidal Tejedor, N.	La Smart city.	Editorial UOC	
Ministerio de Fomento	Pliego de Prescripciones Técnicas Generales para obras de carreteras y puentes (PG-3). https://www.fomento.gob.es/MFOM/LANG_CASTELLANO/DIRECCIONES_GENERALES/CARRETERAS/NORMATIVA_TECNICA/PPTG/PG3/	Ministerio de Fomento	
Butler, D.; Digman, C.; Makropoulos, C. & Davies, J.W.	Urban Drainage. 4 th Edition.	Taylor & Francis, Boca CRC Press Raton	2018