UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

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: 2019-20
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

Lecturer: **JOAQUIN FUENTES DEL BURGO** - Group(s): **30**

Building/Office	Department	Phone number	Email	Office hours
Escuela Politécnica. Despacho 2.03	INGENIERÍA CIVIL Y DE LA EDIFICACIÓN	4838	joaquin.fuentes@uclm.es	El horario se compartirá en la puerta del despacho 2.03 y vía moodle al comienzo del semestre.

Lecturer: **MARIA DEL CARMEN MOTA UTANDA** - Group(s): **30**

Building/Office	Department	Phone number	Email	Office hours
Toletum	INGENIERÍA CIVIL Y DE LA EDIFICACIÓN	925268800 ext. 5353	carmen.mota@uclm.es	El horario se compartirá en la puerta del despacho 2.06 y vía moodle al comienzo del semestre.

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 planing 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.
E15	Ability to identify the elements and construction systems, define their function and compatibility, and their implementation in the 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-mesure, 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 interdisciplinar 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

Building Sustainability: Execution and operation.

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

Manage market information, corresponding to currently constructive systems.

Propose and resolve constructive details appropriate to previous requirements.

Implementation of the construction elements and systems.

Understanding the operation of urbanization services.

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

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

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.

6. Units / Contents

Unit 1: Introduction to Land Planing .

Unit 1.1 Land planing in the 19th, 20th and 21st century From new towns to zoning.

Unit 1.2 The current model. Guidelines and models for the future.

Unit 1.3 Actions performed in Heritage compared to actions performed in today¿s cities.

Unit 2: Land plot framework.

Unit 2.1 Different levels of legislation. Jurisdiction.

Unit 2.2 Classification, qualification and property.

Unit 3: Land and Town Planning instruments.

Unit 3.1 General planning and development figures. Concepts (Preliminary Provision of the Act on Land Planning and Town Planning Activities and Regulations) - Revision and Amendment of Plans.

Unit 3.2 Different planning figures. Historical comparisons and European scene.

Unit 3.3 Town planning¿s execution. Legal scope.

Unit 3.4 Building cities: sustainability and material efficiency criteria .

Unit 4: Open-code town planning and public space quality .

Unit 4.1 Introduction to urban quality measurement criteria and its impact when it comes to build the space.

Unit 4.2 Examples in Europe.

Unit 5: Town planning I.

Unit 5.1 Calculus and use distribution in the public space.

Unit 5.2 Material suitability depending on use.

Unit 5.3 Selection and commissioning works of building constructions.

Unit 5.4 Calculus and structure dimensioning. Forecasting of resources Costs.

Unit 5.5 Drainage and sanitation: definition and scope of application of the technological process.

Unit 6: Planning of urbanization II.

Unit 6.1 Urban water supply.

Unit 6.2 Urban electrical facilities

Unit 6.3 Urban lighting

Unit 6.4 Urban energy networks

Unit 6.5 Smart City

ADDITIONAL COMMENTS, REMARKS

5.5 It will consist of 4 h:

- Sanitation systems.

- Tracing criteria.

- Elements and integral parts.

- Execution and exploitation of sanitation networks.

6.1 It will consist of 5 h:

- Structure of a water supply system.

-Types of distribution networks.

-Types of distribution networks.

- Design flows.

- Design of distribution networks.

- Installation of pipes.

Practical lessons with EPANET.

6.2 It will consist of 4 h:

- Structure of an urban electric power network.

- Constituent elements of a distribution network.

- REBT (Electrical low voltage regulation) and regulations of the companies.

- Partial design of components of a low voltage distribution network.

6.3 It will consist of 4 h:

- Fundamental concepts of lighting technology.

- Lamps, equipment and components. Classification of the luminaires.

- Urban lighting systems.

- Design principles.

- Practical lessons with DIALux

6.4 It will consist of 2 h:

- Layout and typology of fuel gas networks.

- Urban distribution networks of heating and sanitary hot water.

6.5 It will consist of 1 h:

- Smart City concept.

- Technologies and components of the Smart City.

- Examples.

The order in which courses are taught, as well as their extension, will depend on the real hours available during the academic year.

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	E15 E16 G01 G02 G05 G07 G12 G15 G16	0.96	24	N	-	-	1. Master classes - Delivery of the presentation¿s general outline. - Reading of legislation and clarification of concepts through teacher dialogue students. - Explanation, by the teacher, of the method to be applied. Proposal of corrective actions - Attention to questions individually or in groups; in person, in the schedule established for the tutorials of the course - Review and reinforcement of the procedure in tutorials in case of doubts.

Class Attendance (practical) [ON-SITE]	project-based learning	G02 G05 G12 G15 G16	0.48	12	Y	N	N	At the end of the course and once all the contents of the course, the final test is addressed, in which progress is assessed of the student with practical and theoretical issues.
Computer room practice [ON-SITE]	Practical or hands-on activities	E29 G02 G07 G12	0.68	17	Y	N	N	In the computer classroom, and thanks to access to the network, the study of online documentation will be proposed, as different planning figures and different solutions adopted in different locations.
Writing of reports or projects [OFF-SITE]	Self-study	E29 G01 G02 G03 G04 G05 G06 G07 G12 G15 G16 G21	1.4	35	Y	N	N	It is proposed a compilation of the contents addressed in the lectures based on the empirical study of practical cases: application to neighbourhoods of the city of Cuenca.
Study and Exam Preparation [OFF-SITE]	Case Studies	E29 G02 G05 G07 G12 G15 G16	2.2	55	N	-	-	Throughout the course, the study of real cases is proposed from three approaches: as exemplary cases, as documents to enable a critical debate and as assumptions on which to provide solutions
Final test [ON-SITE]	Assessment tests	G02	0.12	3	Y	Y	Y	At the end of the course and once all the contents of the course, the final test is addressed, in which progress is assessed of the student with practical and theoretical issues.
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	E15 E16 G01 G04 G05 G06 G15	0.16	4	N	-	-	
		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
R: Rescheduling training activity

8. Evaluation criteria and Grading System

	Grading System		
Evaluation System	**Face-to-Face**	**Self-Study Student**	**Description**
Projects	20.00%	0.00%	
Final test	50.00%	0.00%	
Fieldwork assessment	30.00%	0.00%	
Total:	**100.00%**	**0.00%**	

Evaluation criteria for the final exam:

Urban facilities
The practice (s) performed during the course will be valued at 10 points. It will represent 50% of the qualification obtained in the part of the Urban Facilities syllabus.
The qualification obtained in the practice(s) will be saved for other calls or other academic courses in case of don't pass the subject.
There will be a test type test that will be assessed over 10 points. It will represent 50% of the qualification obtained in the part of the Urban Facilities syllabus.
The qualification of this part will be given by the following expression: IU = 0.5 · P + 0.5 · E; where P is the qualification obtained in the practices and E is the qualification obtained in the exam.
Global Rating (CG)
The global qualification of the subject is given by the following expression CG = 0.67*GUC + 0.33*IU

Specifications for the resit/retake exam:

Urban facilities
The practice (s) performed during the course will be valued at 10 points. It will represent 50% of the qualification obtained in the part of the Urban Facilities syllabus.
The qualification of this part will be given by the following expression: IU = 0.5*P + 0.5*E; where P is the qualification obtained in the practices and E is the qualification obtained in the exam.

The global qualification of the subject is given by the following expression CG = 0.67*GUC + 0.33*IU

Specifications for the second resit / retake exam:

Urban facilities
The practice (s) performed during the course will be valued at 10 points. It will represent 50% of the qualification obtained in the part of the Urban Facilities syllabus.
The qualification of this part will be given by the following expression: IU = 0.5*P + 0.5*E; where P is the qualification obtained in the practices and E is the qualification obtained in the exam.

The global qualification of the subject is given by the following expression CG = 0.67*GUC + 0.33*IU

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	**hours**
Final test [PRESENCIAL][Assessment tests]	3

General comments about the planning: The hours asigned and temporary distribution will depend on the real hours available during the Academic Course.

Unit 1 (de 6): Introduction to Land Planing .

Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Computer room practice [PRESENCIAL][Practical or hands-on activities]	2
Writing of reports or projects [AUTÓNOMA][Self-study]	8
Study and Exam Preparation [AUTÓNOMA][Case Studies]	5

Comment: Temporary planning may be modified due to unforeseen causes.

Unit 2 (de 6): Land plot framework.

Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Class Attendance (practical) [PRESENCIAL][project-based learning]	1
Computer room practice [PRESENCIAL][Practical or hands-on activities]	1
Writing of reports or projects [AUTÓNOMA][Self-study]	6
Study and Exam Preparation [AUTÓNOMA][Case Studies]	5

Unit 3 (de 6): Land and Town Planning instruments.

Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Class Attendance (practical) [PRESENCIAL][project-based learning]	3
Computer room practice [PRESENCIAL][Practical or hands-on activities]	3
Writing of reports or projects [AUTÓNOMA][Self-study]	6
Study and Exam Preparation [AUTÓNOMA][Case Studies]	5

Group 999:

Initial date: 11/10/2017 **End date:** 18/10/2017

Unit 4 (de 6): Open-code town planning and public space quality .

Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Class Attendance (practical) [PRESENCIAL][project-based learning]	5
Computer room practice [PRESENCIAL][Practical or hands-on activities]	5
Writing of reports or projects [AUTÓNOMA][Self-study]	5
Study and Exam Preparation [AUTÓNOMA][Case Studies]	5

Group 999:

Initial date: 24/10/2017 **End date:** 08/11/2017

Unit 5 (de 6): Town planning I.

Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Class Attendance (practical) [PRESENCIAL][project-based learning]	3
Computer room practice [PRESENCIAL][Practical or hands-on activities]	4
Writing of reports or projects [AUTÓNOMA][Self-study]	4
Study and Exam Preparation [AUTÓNOMA][Case Studies]	7
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1

Group 999:

Initial date: 15/11/2017 **End date:** 22/11/2017

Unit 6 (de 6): Planning of urbanization II.

Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	11
Computer room practice [PRESENCIAL][Practical or hands-on activities]	2
Writing of reports or projects [AUTÓNOMA][Self-study]	6
Study and Exam Preparation [AUTÓNOMA][Case Studies]	28
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3

Group 999:

Initial date: 28/11/2017 **End date:** 13/12/2017

Global activity

Activities	**hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	24
Class Attendance (practical) [PRESENCIAL][project-based learning]	12
Computer room practice [PRESENCIAL][Practical or hands-on activities]	17
Writing of reports or projects [AUTÓNOMA][Self-study]	35
Study and Exam Preparation [AUTÓNOMA][Case Studies]	55
Final test [PRESENCIAL][Assessment tests]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	4
Total horas:	150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	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 les redes de servicios, secciones estructurales de firmes urbanos, actualización método MSV de costes de urbanización			84-930609-0-9		
J.Stéfanou	Etudes du paisage.Vers une iconologie experiméntale de l¿image	SoufflesSA.Paris			1988	
José Gerardo Gómez Melero	Las licencias urban¿siticas 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 urbanísitca					
	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	IDAE				
	http://www.idae.es/uploads/documentos/documentos_GT_EE_iluminacion_Alumbrado_Publico_9a40dc27.pdf					
Ministerio de Fomento	Orden circular 36/2015 sobre criterios a aplicar en la iluminación de carreteras a cielo abierto y túneles.	Ministerio de Fomento				
	https://www.fomento.gob.es/NR/rdonlyres/BDE93CC1-F0A6-47D2-B722-8F6AEBB37C1D/130279/OC362015_TomoII.pdf					
Ministerio de Economía, Industria y Competitividad	Reglamento Electrotécnico para Baja Tensión y sus instrucciones técnicas complementarias (REBT)	BOE				
	http://www.f2i2.net/legislacionseguridadindustrial/Si_Ambito.aspx?id_am=76					
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	Ministerio de Fomento				
	https://www.fomento.gob.es/NR/rdonlyres/74D556F8-A140-462F-A89D-E2B168EA95CD/130278/OC362015_TomoI.pdf					
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)	BOE				
	http://www.f2i2.net/legislacionseguridadindustrial/Si_Ambito.aspx?id_am=83					
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 19.11.08)	BOE				

	http://www.f2i2.net/legislacionseguridadindustrial/Si_Ambito.aspx?id_am=86			
Colado Garcia, 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).	Ministerio de Fomento		
	https://www.fomento.gob.es/MFOM/LANG_CASTELLANO/DIRECCIONES_GENERALES/CARRETERAS/NORMATIVA_TECNICA/PPTG/PG3/			
Butler, D.; Digman, C.; Makropoulos, C. & Davies, J.W.	Urban Drainage. 4 th Edition.	Taylor & Francis, CRC Press	Boca Raton	2018