

ASSIGNMENT'S TEACHING GUIDE

CIVIL ENGINEERING AND TERRITORY

Course —

COURSE	MATTER	PERIODO	GROUP	CREDITS / HOURS	TYPE
CLCEI	Civil Engineering and Spatial planning			4,5 / 45	Optional
SCHEDULE			CLASSROOM		
PROFESSOR			CONTACT INFORMATION FOR TUTORIES (email)		
•			TUTORING HOURS		
COURSE IN WHICH IT IS TAUGHT			OTHER COURSES THAT MAY BE OFFERED		
Spanish Language and Culture Course					
PREREQUISITES AND/OR RECOMMENDATIONS (if applicable)					
<ul style="list-style-type: none"> • Have taken the course access level test • (other) 					
BRIEF CONTENT DESCRIPTION (AS THE CLM CURRICULUM)					
<p>Knowledge of the role of civil engineering infrastructures in the transformation and development of Spanish territories. Theoretical-practical knowledge is intended by approaching the history of civil engineering works, as well as by analysing the location of public works in the territory and their territorial impact. Infrastructure development will be attended from the knowledge of the foundations of sectoral planning and its relationship with territorial planning. The incidence of civil engineering infrastructure in the different Spanish territorial and urban models will be assessed. It will show the need for landscape integration of infrastructure in its environment, as well as urban infrastructure and services as building elements of the city and its public spaces. In metropolitan areas, the role of transport and mobility infrastructures and current technological applications will be studied, giving rise to the "Smart Cities". Through the study of national and international cases, students will be given a global vision of the role of civil engineering infrastructure in the transformation and development of different territories. In addition, field visits will be carried out to illustrate the theoretical and practical contents in situ.</p>					
GENERAL AND SPECIFIC COMPETENCES					
<p>GENERAL COMPETENCES:</p> <ul style="list-style-type: none"> • Knowledge of the history of civil engineering and training to analyse and assess public works in particular and construction in general. • Understanding the multiple territorial constraints that arise in the development of a public work. • Analysis of the location of public works in the territory and its territorial impact. 					



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- Knowledge of the different territorial and urban models through the incidence of civil engineering infrastructures in them
- Ability to collect and interpret relevant data on case studies to make judgments that include a reflection on the issues raised.
- Ability to transmit information, ideas, problems and solutions to both a specialized and non-specialized public.
- Oral and written communication in Spanish.
- Self-study and work autonomously.
- Field work.

SPECÍFIC COMPETENCES:

- Knowledge of the influence of infrastructure in the planning of the territory and to participate in the urbanization of urban public space, such as water distribution, sanitation, waste management, transportation system, traffic, etc.

OBJECTIVES (EXPRESSED AS EXPECTED RESULTS OF TEACHING)

- Know the role of civil engineering infrastructure in the transformation and development of territories.
- Know the main historical landmarks of public works in Spain and their functionality.
- Analyse the location of public works in the territory and its territorial impact from exemplary experiences and case studies.
- Knowledge of the basis of sectoral planning and its relationship with territorial planning.
- Assess the incidence of civil engineering infrastructure in different territorial and urban models,
- Understand the need to integrate infrastructures into their environment, and their role as building elements of the city and its public spaces.
- Know different Spanish territories through their infrastructures.
- Apply the knowledge acquired in the field work.

DETAILED AGENDA OF THE COURSE

THEORETICAL SYLLABUS:

- Lesson 1. Presentation: Civil engineering infrastructures in the transformation and development of territories.
- Lesson 2. Historical public works and their valuation: main Roman, medieval, Renaissance and 18th-century works, and XIX in urban and territorial conformation.
- Lesson 3. Planning and development of infrastructures within the framework of territorial planning.
- Lesson 4. The location of public works and their territorial impact.
- Lesson 5. Pathways and road infrastructures and the opening of the territories. The main peninsular crossings.
- Lesson 6. Railways and railway infrastructure and urban systems. The conventional and high-speed rail network in Spain.
- Lesson 7. Channels, dams and hydraulic infrastructures. Irrigation and supply of territories. The basins of Southeast Spain.
- Lesson 8. Ports and port infrastructures and coastal territories: The extensive Spanish Mediterranean coast.
- Lesson 9. Infrastructure and logistics platforms in the large centers of Spanish production and consumption.
- Lesson 10. Urban infrastructure and services. Mobility and Smart Cities in the great Spanish metropolitan areas.

PRACTICAL AGENDA:

Practical sessions



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Various practical sessions will be held around case studies with cartography and orthophoto analysis

Seminars

The activity of the Seminars will be the preparation and presentation in the class of the case study of the territorial dimensions and impacts of an infrastructure chosen by the students in accordance with the professor at their respective countries and will be at least of 2000 words.

Field Practices

Field trips will be made, where the theoretical and practical contents exposed in class will be illustrated in situ.

BIBLIOGRAPHY

FUNDAMENTAL BIBLIOGRAPHY

- Actas de los Congresos de Ingeniería Civil, Territorio y Medio Ambiente.
- AGUILÓ, M. (1999): El paisaje construido. Colegio de Ingenieros de Caminos, Canales y Puertos.
- Asociación de Ingenieros de Caminos, Canales y Puertos (2018): GOING, la App sobre las Grandes Obras de la Ingeniería Española. Available at: <http://ingenieria-civil.org/going/>
- GÓMEZ OREA, D. (2013): Ordenación Territorial. Mundi Prensa, Madrid
- GÓMEZ ORDÓÑEZ, J.L. Y GRINDLAY MORENO, A.L. (dirs.) (2008): "Agua, Ingeniería y Territorio: La Transformación de la Cuenca del río Segura por la Ingeniería Hidráulica". Ed. Confederación Hidrográfica del Segura. 680 pp.
- GONZÁLEZ TASCÓN, I. (2009): Historia de la ingeniería en España, Madrid,
- GRINDLAY MORENO, A.L. (2007): La Planificación del Territorio y de las Infraestructuras. En Martínez Montes, G. y Pellicer Armiñada, E. (eds.): Organización y Gestión de Proyectos y Obras. McGraw-Hill pp. 165-185
- GRINDLAY MORENO, A.L. (2008): Puerto y Ciudad en Andalucía Oriental. Ed. Universidad de Granada. 503 pp.
- GRINDLAY MORENO, A.L. (Invs. ppal.) (2014): El Valor de las Carreteras Provinciales: Estudio Económico sobre el Dominio Público Viario de la Diputación de Granada. Ed. Diputación de Granada. 330 pp.
- MC HARG, I. L. (2000): Proyectar con la Naturaleza. Ed. G.G. Barcelona.
- MOLERO-MELGAREJO, E., RODRÍGUEZ-ROJAS, M.I., GRINDLAY-MORENO, A.L (2015): La enseñanza del urbanismo de los ingenieros civiles y los sistemas de información geográfica. Universidad de Granada. Departamento de Urbanística y Ordenación del Territorio. Available at: <http://hdl.handle.net/10481/36646>
- V.V.A.A. (2019): I Foro Patrimonio Cultural de la Obra Pública. Libro de Actas. Available at: http://fpop.es/wp-content/uploads/2019/10/Libro_Actas_FPOP-web.pdf

RECOMMENDED LINKS

- Revistas Ingeniería y Territorio, Obras Públicas y Cauce. Colegio de Ingenieros de Caminos, Canales y Puertos. Disponibles en <http://www2.ciccp.es/index.php/publicaciones>
- www.cehopu.es
- www.fundicot.org
- www.juntadeandalucia.es/organismos/fomentoyvivienda.html
- www.traianus.com
- www.urbanred.aq.upm.es/
- www3.ciccp.es
- <http://ingenieria-civil.org/going/>
- <https://es.goolzoom.com/>
- <http://contenido.ign.es/iberpix2/visor/>



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TEACHING METHODOLOGY

Training activities of face-to-face nature. They include:

- Theoretical classes: Exhibition of contents by the teacher that will be discussed in class. It will be accompanied by appropriate teaching materials to facilitate learning (especially photographic and cartographic documents, etc., essential for proper geographical learning). These classes are intended to be interactive, so the participation of the attendees is recommended, as they serve to acquire knowledge, consolidate the fundamental contents of each thematic unit, answer questions and expand some questions that arise in the classroom.
- Practical classes, seminars and field trips. They will be developed to know in a practical way and in their own context the role of civil engineering infrastructures in the transformation and development of territories. The seminars should focus on the exchange of ideas and the sharing of knowledge and experiences, always in relation to the contents and objectives of the subject.
- Commitment and involvement for the individual tutorial plan: training space in which students and teachers generate an interactive process that includes, among other factors, the methodology for studying the subject, the search for the best academic results or the formative orientation that favors autonomous learning and teamwork. You should consider the maximum use of the potential offered by all technologies useful for the training process. Certain classroom sessions will be reserved for collective tutorials, but the student is urged to regularly attend individualized tutorials, since they are decisive for the resolution of doubts or the monitoring of activities and tasks carried out during the course.
- Knowledge assessment as set out in the correspondent section.

Training activities of a non-face-to-face nature. Include:

- Autonomous learning activities. Its general purpose is to hold the student responsible for their own learning. They should facilitate the acquisition of skills, seeking the appropriate use of communication skills, both oral and written, not forgetting the training for the interpretation of the contents of the subject. They must relate to the most appropriate academic and professional profile for the subject.
- Practical teamwork activities in the classroom: They will seek the creation and development of teamwork dynamics applied to the contents of the subject. They must be coordinated, supported by the complementarity, trust and commitment of the team members and be subject to continuous and close monitoring of the teacher. They can consist of or translate into exhibitions, seminar debates, case or project simulation.

EVALUATION (EVALUATION INSTRUMENTS, EVALUATION AND PERCENTAGE CRITERIA ON FINAL QUALIFICATION, ETC.)

- In order to have the right to be evaluated, **attendance at 80% of classes is mandatory**
- CONTINUOUS EVALUATION:
Attendance and participation in practical activities (30%)
Preparation and presentation of Seminars (60%)
Final interview about the contents of the course (10%)

The activity of the Seminars will be the preparation and presentation in the class of the case study of the territorial dimensions and impacts of an infrastructure chosen by the students in accordance with the professor at their respective countries and will be at least of 2000 words.

ADDITIONAL INFORMATION



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ACTIVITIES PROGRAM											
First Semestre	Lessons	Face-to-face activities						Non face-to-face activities			
		Theoretical Session (hours)	Practical Sessions (hours)	Seminars (hours)	Colective Tutories (hours)	Evaluation activities (hours)	Etc.	Individual Tutories (hours)	Student Study (hours)	Group works (hours)	Etc.
Week 1	1	1,5							1		
Week 2	2	1,5	1						1,5		
Week 3	3	1,5	1						1,5		
Week 4	4	1,5	1						1,5		
Week 5	5.1	1,5	1	1					2,5		
Week 6	5.2	1,5	1	1					2,5		
Week 7	Seminar					1			3,5		
Week 8	Visit		3,5						2,5		
Week 9	6	1,5	1	1					2,5		
Week 10	7.1	1,5	1	1					2,5		
Week 11	7.2	1,5	1						2,5		
Week 12	8	1,5	1	1					2,5		
Week 13	9	1,5	1	1					2,5		
Week 14	10.1	1,5	1	1					2,5		
Week 15	10.2	1,5	1						2,5		
Week 16	Visit		3						2,5		
Week 17	Test					1			3		
Total hours		19,5	18,5	7		2			39,5		



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