UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: PROJECT WORK: MULTI-MODAL HUBS
Code: 38329
Type: CORE COURSE
ECTS credits: 6
Degree: 345 - UNDERGRADUATE DEGREE PROGRAMME IN CIVIL ENGINEERING
Academic year: 2023-24
Center: 603 - E.T.S. CIVIL ENGINEERS OF CR
Group(s): 20
Year: 4
Duration: First semester
Main language: Spanish
Second language: Spanish
Use of additional languages:
English Friendly: Y
Web site:
Bilingual: N

Lecturer: **ELENA DÍAZ BURGOS** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
Politécnico 2-B30	INGENIERÍA CIVIL Y DE LA EDIFICACIÓN		Elena.DBurgos@uclm.es	MON, TUE, WED, THU: 11:00 - 13:00. Contact us by email to arrange other office hoursif necessary.

Lecturer: **ANA MARIA RIVAS ALVAREZ** - Group(s): **20**

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Politécnico 2-A49	INGENIERÍA CIVIL Y DE LA EDIFICACIÓN	926051938	ana.rivas@uclm.es	Mon, Tue and Thu: 12:30-14:30. Contact us by email to arrange other office hours if necessary.

Lecturer: **SANTOS SANCHEZ CAMBRONERO GARCIA MORENO** - Group(s): **20**

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Politécnico /2-A47	INGENIERÍA CIVIL Y DE LA EDIFICACIÓN	926052819	santos.sanchez@uclm.es	Mon, Tue and Fri: 12:00 - 14:00. Contact us by email to arrange other office hours if necessary.

2. Pre-Requisites

All of them are assumed to be 4th grade students. They are considered to be priorities:

- Knowledge of technical drawing and descriptive geometry (AUTOCAD)
- Knowledge of the basics of road layout
- Knowledge of the general concepts of the structure and planning of the territory

The knowledge mentioned above means being aware of the PBL's own work methodology (Project Based Learning).

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

The course responds to the requirements established in the formulation of the teaching areas that the student needs to cover in order to obtain the degree of Civil Engineer.

It completes the students' knowledge of transport networks acquired in the third year in relation to linear works incorporating the operation of transport nodes. Its vision is integrative in that it deals with each of the nodes from a common point of view, which makes it possible to optimise teaching effort.

4. Degree competences achieved in this course

Course competences

Code	Description
CB03	Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.
CB04	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
CE01	Students can apply their knowledge in the practical solution of civil engineering problems, with capacity for the analysis and definition of the problem, the proposal of alternatives and their critical evaluation, choosing the optimal solution with technical arguments and with capacity of defense against third parties.
CE02	Students have the ability to broaden their knowledge and solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study. Self-study ability, to undertake further studies with a high degree of autonomy
CE03	Students have the capacity to integrate sustainability, respect for the environment and general interest criteria into the design and engineering decision-making processes, keeping in mind economic rationality.
CG04	Students have management and teamwork skills
TSU05	Students have acquired knowledge of the design and operation of infrastructure for transport interchanges, such as ports, airports, railway stations and logistics hubs.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Students apply criteria to define their appropriate location in the territory.

Students understand the concepts associated with the basic terminology of modal interchange centers.
Students apply the tools for dimensioning the different categories of modal interchange centers.
Students are familiar with the most representative elements and aspects of these centres, through on-site visits to a significant group of modal interchange center

6. Units / Contents

Unit 1: The airport as a modal interchange center

- **Unit 1.1** General issues about airports
- **Unit 1.2** Special zones designed for freight and passenger modal shif
- **Unit 1.3** Aircrafts
- **Unit 1.4** Equipment and staff of the airport
- **Unit 1.5** Conexions to the land transportation network
- **Unit 1.6**

Unit 2: Logistic Platforms

- **Unit 2.1** General issues about logistic platforms
- **Unit 2.2** Types of logistics warehouses
- **Unit 2.3** Equipment
- **Unit 2.4** Unit 5: Urban mul
- **Unit 2.5**
- **Unit 2.6**

Unit 3: Urban multi-modal transportation hubs

- **Unit 3.1** Introduction: Historical evolution
- **Unit 3.2** The need of an urban multi-modal transportation hub
- **Unit 3.3** Types of urban multi-modal transportation hubs
- **Unit 3.4** Elements of an urban multi-modal transportation hub
- **Unit 3.5** The design keys of an urban multi-modal transportation hub

Unit 4:

- **Unit 4.1**
- **Unit 4.2**
- **Unit 4.3**
- **Unit 4.4**

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]	Case Studies	CB03 CE02 TSU05	1	25	N	-	Concepts to be acquired in the subject by means of cases.
Problem solving and/or case studies [ON-SITE]	Project/Problem Based Learning (PBL)	CB03 CE01 CE02 CE03 CG04 TSU05	0.84	21	Y	Y	Analysis of cases (one relating to each unit of the subject) and transformation of the proposed modal interchange centre, applying PBL.
Project or Topic Presentations [ON-SITE]	Project/Problem Based Learning (PBL)	CB03 CB04 CE01 CE02 CE03 CG04 TSU05	0.24	6	Y	Y	Presentation of the four case analyses (one for each unit of the subject) and the proposal for the transformation of the assigned modal interchange centre.
Writing of reports or projects [OFF-SITE]	Project/Problem Based Learning (PBL)	CB03 CE01 CE02 CE03 CG04 TSU05	2.42	60.5	Y	Y	It shall consist of a power point file describing, mainly by means of plans and images, the characteristics of the project developed.
Field work [ON-SITE]	Other Methodologies	CE02 CE03 TSU05	0.2	5	N	-	Visit to modal interchage centres.
Progress test [ON-SITE]	Assessment tests	CB03 CB04 CE01 CE02 CE03 TSU05	0.12	3	Y	Y	Assessment test based on the glossary of terms and concepts of each of the units of the subject.
Study and Exam Preparation [OFF-SITE]	Self-study	CB03 CB04 CE01 CE02 CE03 CG04 TSU05	1.18	29.5	Y	Y	Preparation of presentations and drafting of glossaries.
		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
Assessment of problem solving and/or case studies	56.00%	56.00%	Project analysis of 4 cases (one per unit).The teacher will consider the following aspects: - Structure of the presentation and processing of graphic and documental information of case studies (55%) - Use of the concepts learned to interpret the operation of the

			modal interchanger under analysis (glossaries)(15%). The minimum mark for each unit is 4.
Progress Tests	29.00%	29.00%	Theoretical content tests (based on the glossaries of terms and concepts of each unit) which will be taken continuously throughout the course (one per unit). The minimum mark for each progress test is 4.
Assessment of problem solving and/or case studies	15.00%	15.00%	Project for the transformation of the assigned interchange centre. The solution designed and the presentation to the examining board will be taken into account. The minimum mark is 4.
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:

To pass the course is compulsory to obtain at least a 5 in the above-mentioned assessments, bearing in mind taking into account that the subject is divided into 4 units (ports, airports, logistics platforms and urban multi-modal transportation hubs) and in each of them a minimum mark of 4 must be obtained. Each unit will be assessed with a progress test and with the resolution of problems or case studies according to the evaluation system.
The units in which the student obtains at least a 4 will be kept until the resit exam.
No marks will be kept for subsequent years.

Non-continuous evaluation:

Since this subject is a workshop, that has to be carried out in teams, the non-continuous evaluation would be quite complex. However, the progress tests in the non-continuous evaluation are going to be the same and with the same weights, but the students has to take them individually and deliver them on the established dates at the beginning of the course.
Unless stated otherwise, continuous evaluation criteria will be applied to all students.
Anyone choosing non-continuous assessment must notify it to the lecturer within the class period of the subject. The option is only available if the students participation in evaluation activities (from the continuous assessment) has not reached 50% of the total evaluation for the subject.

Specifications for the resit/retake exam:

The same as those of the final exam.
The tests that do not reach the minimum mark in the final exam will be retaken in this assessment.
For the retake exam, the assessment type used for the final exam will remain valid.

Specifications for the second resit / retake exam:

The same as non-continuous evaluation.

9. Assignments, course calendar and important dates

Not related to the syllabus/contents	
Hours	**hours**
Progress test [PRESENCIAL][Assessment tests]	5
Unit 1 (de 4): The airport as a modal interchange center	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Case Studies]	9
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	7
Project or Topic Presentations [PRESENCIAL][Project/Problem Based Learning (PBL)]	2
Writing of reports or projects [AUTÓNOMA][Project/Problem Based Learning (PBL)]	22
Progress test [PRESENCIAL][Assessment tests]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	10
Unit 2 (de 4): Logistic Platforms	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Case Studies]	10
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	7.5
Project or Topic Presentations [PRESENCIAL][Project/Problem Based Learning (PBL)]	2
Writing of reports or projects [AUTÓNOMA][Project/Problem Based Learning (PBL)]	20
Progress test [PRESENCIAL][Assessment tests]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	10
Unit 3 (de 4): Urban multi-modal transportation hubs	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Case Studies]	3
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	6.5
Project or Topic Presentations [PRESENCIAL][Project/Problem Based Learning (PBL)]	2
Writing of reports or projects [AUTÓNOMA][Project/Problem Based Learning (PBL)]	18.5
Progress test [PRESENCIAL][Assessment tests]	.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	6.5
Unit 4 (de 4):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Case Studies]	3
Progress test [PRESENCIAL][Assessment tests]	.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	3
Global activity	
Activities	**hours**
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	21
Class Attendance (theory) [PRESENCIAL][Case Studies]	25

Project or Topic Presentations [PRESENCIAL][Project/Problem Based Learning (PBL)]	6
Progress test [PRESENCIAL][Assessment tests]	8
Study and Exam Preparation [AUTÓNOMA][Self-study]	29.5
Writing of reports or projects [AUTÓNOMA][Project/Problem Based Learning (PBL)]	60.5
Total horas:	150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Coccia, E	Intermodality and Interchanges	European Comision			1999	
Consorcio Regional de Transportes	Intercambiadores de transporte, manual y directrices: PIRATE	Consorcio Regional de Transportes			2000	
Horonjeff, Robert	Planning and design of airports	McGraw-Hill		0-07-045345-4	1993	
Alberto Camarero, Alfonso Camarero	Tráfico marítimo de pasajeros	Fundación Agustín Bentacourt		9788461645381	2013	
CARRERA, F.	Los centros de transporte de mercancías en España : conceptualización, elementos a considerar en relación a su ubicación y contribución al potenciamiento de la intermodalidad	Ministerio de Fomento, Direción General de Ferrocarriles y Transportes			1999	
Camarero, A	Cadenas Integradas de transporte				2005	
Colomer J.V	El transport terrestre de mercancías: Organization y management	Fundación Instituto Portuario de tansporte			1998	
Terris,G	Guide urban interchanges : a good practice guide	European Comision			2000	
Rodríguez Pérez, Fernando	Dirección y explotación de puertos	Puerto Autónomo de Bilbao		84-505-2633-7	1985	