

**1. General information****Course:** TRANSPORT ECONOMICS**Code:** 310809**Type:** CORE COURSE**ECTS credits:** 4.5**Degree:** 2343 - MASTERS DEGREE PROGRAMME IN ENGINEERING OF ROADS, CANALS AND PORTS**Academic year:** 2021-22**Center:** 603 - E.T.S. CIVIL ENGINEERS OF CR**Group(s):** 20**Year:** 1**Duration:** C2**Main language:** English**Second language:** Spanish**Use of additional languages:****English Friendly:** N**Web site:****Bilingual:** N**Lecturer:** ANA MARIA RIVAS ALVAREZ - Group(s): 20

Building/Office	Department	Phone number	Email	Office hours
Politécnico 2-A49	INGENIERÍA CIVIL Y DE LA EDIFICACIÓN	926051938	ana.rivas@uclm.es	It will be determined at the beginning of the course depending on the availability of the students.

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

Building/Office	Department	Phone number	Email	Office hours
Politécnico /2-A47	INGENIERÍA CIVIL Y DE LA EDIFICACIÓN	926052819	santos.sanchez@uclm.es	It will be determined at the beginning of the course depending on the availability of the students.

**2. Pre-Requisites**

It would be advisable to have a basic knowledge of some mathematical tools optimization program (Mathematica, Matlab, GAMS).

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

Basic training for the curriculum of students in the infrastructure and transport services area. The course deals with a set of specific topics unrelated to other sectors in which the link is the tools for optimisation and the mathematical formalisation of some of the problems inherent to the business management of the transport area.

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

Code	Description
CB06	Possess and understand knowledge that provides a basis or opportunity to be original in the development and / or application of ideas, often in a research context.
CB07	Apply the achieved knowledge and ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the area of study
CB09	Know how to communicate the conclusions and their supported knowledge and ultimate reasons to specialized and non-specialized audiences in a clear and unambiguous way
G21	Ability to apply optimization tools to aid decision making, as well as to discern exploitation proposals compatible with the constraints and peculiarities of the built infrastructure.
G25	Ability to identify, measure, enunciate, analyse, diagnose and scientifically and technically describe a civil engineering problem
G26	Capacity to apply business management and labour law
G27	Ability to communicate in a second language.
TE08	Knowledge of transport engineering and planning, transport functions and modes, urban transport, management of public transport services, demand, costs, logistics and financing of transport infrastructure and services.
TE10	Capacity for planning, management and operation of civil engineering related infrastructures.

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

Students identify the participation of transport in the logistics sector.

Students can solve the problems typical of the management and operation of transport services from the scope of the operating company.

Students can solve the problems typical of planning, management and operation of transport from the scope of the administration.

Students know and understand the transport market.

Students are familiar with the organization of transportation.

Students are familiar with the management systems of a transport company.

Students know the economic costs and externalities of transport.

**6. Units / Contents****Unit 1: Spanish Transport System****Unit 2: Economic Transport Costs**

Unit 3: External Costs and Benefits of Transport Infrastructure

Unit 4: Financing Transport Services

Unit 5: Taxation Transport

Unit 6: Public Transport Services Management

Unit 7: Transport Services Companies Characterization

Unit 8: Marketing applied to Transport Services

Unit 9: Logistic

## 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	CB06 G26 G27 TE08 TE10	0.72	18	N	-	
Class Attendance (practical) [ON-SITE]	Problem solving and exercises	CB06 CB07 CB09 G26 G27 TE08 TE10	0.24	6	Y	N	
Project or Topic Presentations [ON-SITE]		CB07 CB09 G27	0.16	4	Y	N	
Computer room practice [ON-SITE]	Problem solving and exercises	CB06 CB07 TE08 TE10	0.13	3.25	N	-	
Progress test [ON-SITE]	Assessment tests	CB06 CB07 CB09 G26 G27 G28 TE08 TE10	0.1	2.5	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	CB06 CB07 CB09 G26 G27 TE08 TE10	1.32	33	N	-	
Writing of reports or projects [OFF-SITE]	Problem solving and exercises	CB06 CB07 CB09 G26 G27 G28 TE08 TE10	1.83	45.75	Y	Y	
<b>Total:</b>			<b>4.5</b>	<b>112.5</b>			
<b>Total credits of in-class work: 1.35</b>			<b>Total class time hours: 33.75</b>				
<b>Total credits of out of class work: 3.15</b>			<b>Total hours of out of class work: 78.75</b>				

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
Final test	0.00%	50.00%	Written exam on the content of the theoretical part of the course (short-question test and long topic). Minimum mark 4.
Final test	0.00%	50.00%	Solving two problems with similar characteristics to those seen in the course. Minimum mark 4.
Progress Tests	40.00%	0.00%	It will consist of a glossary referring to each of the units of the subject. Minimum mark 4. This tests are not recoverable.
Assessment of problem solving and/or case studies	40.00%	0.00%	Solving the problem proposed in each of the units. The minimum mark for each problem is 4. This test will be recoverable by solving additional problems that must be submitted before the date set for the ordinary exam.
Oral presentations assessment	10.00%	0.00%	
Assessment of active participation	10.00%	0.00%	Participation in the resolution of exercises in class will be considered.
<b>Total:</b>	<b>100.00%</b>	<b>100.00%</b>	

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:

The course is passed with a mark out of 5, after applying the criteria set out in the evaluation system, with the minimum marks indicated.

Grades are not kept for subsequent years

#### Non-continuous evaluation:

The course is passed with a mark out of 5, after applying the criteria set out in the evaluation system, with the minimum marks indicated.

Grades are not kept for subsequent years

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.

For the retake exam, the assessment type used for the final exam will remain valid.

### Specifications for the resit/retake exam:

The same as for the final exam.

### Specifications for the second resit / retake exam:

The same as for the final exam.

## 9. Assignments, course calendar and important dates

Not related to the syllabus/contents	
Hours	hours

<b>Unit 1 (de 9): Spanish Transport System</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	1.5
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	1
Project or Topic Presentations [PRESENCIAL][]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	3.3
Writing of reports or projects [AUTÓNOMA][Problem solving and exercises]	5
<b>Unit 2 (de 9): Economic Transport Costs</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	3.3
Writing of reports or projects [AUTÓNOMA][Problem solving and exercises]	4
<b>Unit 3 (de 9): External Costs and Benefits of Transport Infrastructure</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	1.5
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	1
Progress test [PRESENCIAL][Assessment tests]	.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	3
Writing of reports or projects [AUTÓNOMA][Problem solving and exercises]	5
<b>Unit 4 (de 9): Financing Transport Services</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	1.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	3
Writing of reports or projects [AUTÓNOMA][Problem solving and exercises]	4
<b>Unit 5 (de 9): Taxation Transport</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	1.5
Progress test [PRESENCIAL][Assessment tests]	.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	3
Writing of reports or projects [AUTÓNOMA][Problem solving and exercises]	4
<b>Unit 6 (de 9): Public Transport Services Management</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	1.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	3
Writing of reports or projects [AUTÓNOMA][Problem solving and exercises]	4
<b>Unit 7 (de 9): Transport Services Companies Characterization</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	1
Project or Topic Presentations [PRESENCIAL][]	.75
Computer room practice [PRESENCIAL][Problem solving and exercises]	.5
Progress test [PRESENCIAL][Assessment tests]	.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	4.5
Writing of reports or projects [AUTÓNOMA][Problem solving and exercises]	5
<b>Unit 8 (de 9): Marketing applied to Transport Services</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	1
Project or Topic Presentations [PRESENCIAL][]	.75
Computer room practice [PRESENCIAL][Problem solving and exercises]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	4.5
Writing of reports or projects [AUTÓNOMA][Problem solving and exercises]	5
<b>Unit 9 (de 9): Logistic</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	1
Project or Topic Presentations [PRESENCIAL][]	.75
Computer room practice [PRESENCIAL][Problem solving and exercises]	1
Progress test [PRESENCIAL][Assessment tests]	.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	2.1
Writing of reports or projects [AUTÓNOMA][Problem solving and exercises]	4.75
<b>Global activity</b>	
<b>Activities</b>	<b>hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	16.5
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	5
Project or Topic Presentations [PRESENCIAL][]	3.25
Computer room practice [PRESENCIAL][Problem solving and exercises]	2.5
Progress test [PRESENCIAL][Assessment tests]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	29.7
Writing of reports or projects [AUTÓNOMA][Problem solving and exercises]	40.75
<b>Total horas: 99.7</b>	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Button, Kenneth	Transport Economics	Edward Elgar		1-85278-523-3	1993	
Colomer Ferrándiz, José V.	Centros integrados de mercancías: una visión global	Fundación Instituto Valenciano de Estudios de Tran		84-921119-0-9	1995	
FAULKS, Rex W.	Principles of Transport	McGraw-Hill		0711004722	1990	
FRYBOURG, M.	Enseignement Supérieur de Transport,	Paradigme	Caen, Francia	2868780121	1991	
BRUTON, M. J.	Introduction to Transportation Planning	Hutchinson	London	0090986202	1988	
Izquierdo de Bartolomé, Rafael	transportes un enfoque integral	Servicio de publicaciones CICC	Madrid	9788474932119	1994	
Manheim, m	Fundamentals of Transportation Systems Analysis	M.I.T. Press, Series of Transportation Studies,	USA	9780262632898	1979	
Papacostas, C. S.	Transportation engineering and planning	Prentice Hall		0-13-081419-9	2001	
Potrykowski, Marek	Geografía del transporte	Ariel		84-344-3440-7	1984	
Quinet, Emile	Principes d'économies des transports	Economica		2-7178-3703-5	1998	
Quinet, Emile	Économie des transports	Economica		2-7178-0508-7	1982	
Thomson, J. M.	Teoría económica del transporte	Alianza		84-206-2153-6	1976	