



Universitat d'Alacant
Universidad de Alicante

33548 - PLANNING AND OPERATING TRANSPORT INFRASTRUCTURES (2018-19)

General

Code: 33548

Lecturer responsible:

ORTUÑO PADILLA, ARMANDO

Credits ECTS:	6
Theoretical credits:	1,2
Practical credits:	1,2
Distance-base hours:	3,6

Departments involved

- **Dept:** CIVIL ENGINEERING
Area: INFRAESTRUCTURE AND TRANSPORT ENGINEERING
Theoretical credits: 1,2
Practical credits: 1,2
This Dept. is responsible for the course.
This Dept. is responsible for the final mark record.

Study programmes where this course is taught

- PHD IN MATERIALS, STRUCTURES AND SOIL ENGINEERING: SUSTAINABLE CONSTRUCTION
Course type: COMPLEMENTOS DE FORMACIÓN EN INVESTIGACIÓN (Year: 9)
- DEGREE IN CIVIL ENGINEERING
Course type: OPTIONAL (Year: 4)

Competencies and objectives

Course context for academic year 2018-19

Planning and management of infrastructures in a social, territorial, environmental and economically sustainable way, from a multidisciplinary point of view.

Likewise, the location of uses in the territory, the spatial distribution of economic activity, and the needs of transport demand are interrelated when it comes to facing the design of infrastructures, but also when acting on the territory.

The subject has as a general objective of an integrated vision, both in the scale (city, territory, country), and in the techniques (transport engineering, urban planning, environment, etc.), which allows its analysis from a complex perspective.

Course content (verified by ANECA in official undergraduate and Master's degrees)

UA Basic Transversal Competences

- **CT-10** : Capacity to confront, plan and solve real problems demanded by society in the field of engineering.
- **CT-11** : Capacity to learn and apply new concepts and methods in an autonomous and interdisciplinary fashion.
- **CT-12** : Capacity to assimilate and adapt to the permanent evolution of technology when developing one's professional career.
- **CT-8** : Capacity to plan tasks and commit oneself to satisfying goals and deadlines.

Specific Competences (Specific Technology):>>Transit and Urban Services

- **CET-5** : Understand the design and working of modal interchange infrastructures, such as ports, airports, railway and bus stations and transport logistics centre. Knowledge of transport engineering, planning and management.

Basic Transversal Competences

- **CB-3** : Students should have the ability to gather and interpret relevant data (normally within their field of study) to give opinions that include a reflection on important, social, scientific, ethical matters, etc.
- **CB-4** : Students should be able to transmit information, ideas, problems and solutions to both specialist and non-specialist audiences.
- **CB-5** : Students should have developed the necessary learning skills to undertake later studies with a high level of autonomy.

Exclusive skill taught in this course

No data

Learning outcomes (Training objectives)

No data

Specific objectives stated by the academic staff for academic year 2018-19

To transmit to the students the basic foundations of the planning and management of transport infrastructures.

To provide an integrated vision of transport planning in relation to spatial and urbanism

To provide the necessary tools so that the students can develop his professional attributions in the framework of the planning and management of transport infrastructures.

To carry out in a practical way the design and management of transport infrastructures for goods and travellers.

Content and bibliography

Content for academic year 2018-19

THEORETICAL PART

1. INTRODUCTION

- Transportation sector problematics in Europe. Road congestion, emission of polluting gases and accidents.
- Intervention strategies of European organizations regarding freights transportation.
- Evolution of transport and current situation. Passenger and goods transport trends.

2. TRANSIT-ORIENTED-DEVELOPMENT (T.O.D.)

- Concept.
- International good practices.
- Implementation possibilities. Mobility studies. Node-place model. Analysis of results. Conclusions and implementation of T.O.D.

3. TRANSPORTATION AND ECONOMIC DEVELOPMENT

- Introduction. Privatization of rail services. Theories about economic development.
- Infrastructure and development.
- Scale economics.
- Transportation, public investment and employment.
- Transportation, energy and taxation.

4. ENVIRONMENTAL IMPACT OF TRANSPORT INFRASTRUCTURES. RELATIONS BETWEEN TRANSPORTATION AND TERRITORY

- Transportation constraints.
- Transport impacts on the environment. Impacts on the physical environment. Impacts on the socioeconomic environment.
- Atmospheric pollution. General aspects, contaminants, effects, origin.
- Acoustic pollution. Scale of sound levels. Effects of noise. Reduction measures.
- Impacts on hydrology, on vegetation, fauna and landscape
- Socioeconomic impacts

5. SECURITY IN TRANSPORTATION

- Security in between different modes of transport.
- Factors that influence road safety.
- Road safety figures: indicators, global figures, accidents on the road and in urban areas, variables related to the human factor and safety systems in the vehicle.
- Actions to improve the infrastructure.
- The relationship between territorial model and road safety.

6. COST-BENEFIT ANALYSIS

- Valuation methods.
- Cost-benefit analysis
- Risk analysis.

7. LOGISTICS

- Concept, importance and strategies (productive side and final consumer).
- The role of transport in logistics. Combined transport and integrated transport chains.
- Infrastructure to support the transport of goods. Logistic platforms

8. CYCLIST MOBILITY

- Relationship with other means of urban transport.
- Physical and social infrastructure of the bicycle.
- Successful international cases: the Dutch case and Copenhagen.

9. HIGH SPEED RAIL

- Criteria for the location of a new railway station: central station, far from the urban center, on the edge of the consolidated city.
- Case study of peripheral stations.
- Reengineering of processes in high speed.
- Territorial impact of High Speed Train infrastructures.

10. MODELS OF TRANSPORTATION BASED ON THE COLLABORATIVE ECONOMY AND THE DISRUPTION OF THE BLOCKCHAIN

- What is the collaborative economy.
- How and why it has arisen.
- Cases of vehicle companies with driver and shared vehicles.
- Blockchain applications to transport.

PRACTICAL PART

The practical part of the subject is divided into two parts, corresponding to the part of practice of problems and field work.

Practice problems: Consist in work related to the theoretical block.

Fieldwork: Consist in the realization of various visits to transport infrastructures related and studied in the theoretical block.

Assessment

Assessment procedures and criteria 2018-19


The evaluation will prioritize the activity and dedication of the student throughout the course, both in the development of practical activities and field work as the assistance to theoretical lessons.

The final exam will evaluate the basic knowledge of the concepts of the subject, as well as the ability to analyze the situations discussed in the lessons throughout the course. To pass the subject, students must reach in the final exam a minimum of 4 points out of 10.

Description	Criteria	Type	Weighting system
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	ACTIVITIES OF EVALUATION DURING THE SEMESTER	10
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	ACTIVITIES OF EVALUATION DURING THE SEMESTER	40
	FINAL TEST	40

Official exam dates for academic year 2018-19

Exam session	Date	Time	Group - Classroom(s) allocated	Comments
(C2) Periodo ordinario para asignaturas de primer semestre	25/01/2019	15:00 - 19:00	EP/S-02M 	Teoría
(C4) Pruebas extraordinarias para asignaturas de grado y máster	28/06/2019			Teoría

