

SUBJECT TEACHING GUIDE

M1456 - Transport Planning and Management

Master's Degree in Civil Engineering

Academic year 2019-2020

| 1. IDENTIFYING DATA | | | | | |
|----------------------------------|---|------------------|--------------------|------------------|--------------------|
| Degree | Master's Degree in Civil Engineering | | | Type and Year | Compulsory. Year 2 |
| Faculty | School of civil Engineering | | | | |
| Discipline | Transport | | | | |
| Course unit title and code | M1456 - Transport Planning and Management | | | | |
| Number of ECTS credits allocated | 6 | Term | Semester based (1) | | |
| Web | | | | | |
| Language of instruction | Spanish | English Friendly | Yes | Mode of delivery | Face-to-face |

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|------------------|---|--|--|--|--|
| Department | DPTO. TRANSPORTES Y TECNOLOGIA DE PROYECTOS Y PROCESOS | | | | |
| Name of lecturer | JOSE LUIS MOURA BERODIA | | | | |
| E-mail | joseluis.moura@unican.es | | | | |
| Office | E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 0. DESPACHO DEL DIRECTOR (0013) | | | | |
| Other lecturers | LUIGI DELL'OLIO BORJA ALONSO OREÑA | | | | |

3.1 LEARNING OUTCOMES

- Learn the basics of the theory of transport networks.
- Modeling transport networks, both private and public.
- Learn the basic tools for data collection transport.
- Know and apply traffic assignment methods, both deterministic and stochastic.
- Learn the basics of dynamic modeling of transport systems.
- Learn to design public transport systems from a viewpoint of physical and operational.
- Understand the traffic management systems in real time .
- Solve traffic problems in high-capacity networks: highways.
- Learning to design a BRT.

4. OBJECTIVES

- Analyze the problems in different transport systems .
- Modeling transport networks and optimize the variables that define it.
- Analyze traffic in urban and intercity networks .
- Analyze public transport systems.

6. COURSE ORGANIZATION

| CONTENTS | |
|----------|---|
| 1 | Demand models |
| 2 | Models of freight distribution in urban area |
| 3 | Introduction to the theory of networks |
| 4 | Stochastic modeling assignment with congestion |
| 5 | Deterministic assignment models with congestion |
| 6 | Dynamic models I: mesoscopic models |
| 7 | Dynamic models II: microscopic models applied to the highway traffic management |
| 8 | Assignment models to public transport congestion |
| 9 | Optimal design of urban transport networks |
| 10 | BRT systems |
| 11 | The case of Transantiago |
| 12 | Interval control realtime |

7. ASSESSMENT METHODS AND CRITERIA

| Description | Type | Final Eval. | Reassessn | % |
|------------------------------------|--------------|-------------|-----------|---------------|
| Part 1. Included unit 1 to unit 6 | Written exam | No | Yes | 30,00 |
| Part 2. Included unit 7 to unit 12 | Written exam | No | Yes | 30,00 |
| Practical classroom | Others | No | No | 15,00 |
| Coursework | Work | No | Yes | 25,00 |
| TOTAL | | | | 100,00 |

Observations

Regarding those evaluation activities that the students can resit, the following general criteria were adopted at the regular meeting of the Civil Engineering School Board held on June 10, 2010:

- A student can only resit an evaluation activity that has not passed (i.e. a grading lower than 5 out of 10).
- The evaluation activity in the resitting period will follow the same procedure and will have the same guidelines as in the ordinary period.

Note:

According to Spanish regulations (RD 1125/2003) about the European credit system and the grading system for University degrees, each course will be graded using a linear scale between 0 and 10 with a precision of a decimal. According to that grading, a qualitative rating may be added:

0.0-4.9: Suspenso (SS). Fail

5.0-6.9: Aprobado (AP). Satisfactory

7.0-8.9: Notable (NT). Good

9.0-10: Sobresaliente (SB). Excellent

Observations for part-time students

For part-time students, the evaluation system will be:

- Face-to-face written exam part 1: 40%
- Face-to-face written exam part 2: 40%
- Work: 20%

Class attendance is not required.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Cascetta E. (2001) "Transportation Systems Engineering: Theory and Methods" Kluwer Ed.

Ashok K., Ben-Akiva M. (1993) "Dynamic Origin-Destination Matrix Estimation and Prediction for Real-Time Traffic Management Systems." Transportation and Traffic Theory, ed. C.F. Daganzo, Elsevier.