

ROAD DESIGN

4,0 ECTS, 2nd Semester, Optional

Professor : María Castro-Malpica

Educational objectives

It is intended that students acquire skills that allow them to do research work in the field of road infrastructure design. After the course, students should know about new trends in road design research and also the fundamental techniques to plan, carry out and analyze research in this area.

The focus of the course is mainly practical. The students will do over the course a practical exercise (with different partial deliveries) and at the end, they should present and discuss.

Content:

1. Introduction. Description of the subject. New trends in road design research.
2. Techniques for research in transport infrastructure. Analysis of cases.
3. Consistency of the road geometric design: concept and applications. Software for the analysis.
4. Visualization techniques. Simulators. Sight distance of the road.
5. Geomatic and geometric design: new techniques of data collection and management of road design information (GPS, LIDAR, MMS, GIS).
6. Design of transport infrastructure in platform reserved. Bus Rapid Transit (BRT).
7. Urban road design and traffic calming.
8. Design for vulnerable road users (pedestrians and cyclists). Roadside design.
9. Design of interchanges: new types of roundabouts, integrated design of road interchanges.
10. Optimization of geometric design.

Bibliography:

- AASHTO : *A Policy on Geometric Design of Highways and Streets*, 872 pág., AASHTO, 2004, Washington D.C.
- JACOBS, A.: *Great Streets*, MIT Press, 1995, Cambridge, MA.
- LANZA, C: *El arco como excusa. Cosas y formas en la ingeniería de transporte*, INECO-TIFSA, 2009, Madrid.
- ROCCI, S. (editor): *Las infraestructuras del transporte y la calidad de vida*, 267 pág., Fundación ACS, 2007, Madrid.