



Course unit English denomination	Urban planning and transport infrastructure solutions for sustainable and smart cities
Teacher in charge (if defined)	Giovanni Giacomello (18 hours / 3 ECTS) Luigi Siviero (6 hours / 1 ECTS)
Teaching Hours	24
Number of ECTS credits allocated	4
Course period	February
Course delivery method	<input checked="" type="checkbox"/> In presence <input type="checkbox"/> Remotely <input type="checkbox"/> Blended
Language of instruction	English
Mandatory attendance	<input checked="" type="checkbox"/> Yes (80% minimum of presence) <input type="checkbox"/> No
Course unit contents	Decision-making processes and strategies for the development of spatial strategic visions; approaches for an innovative urban and landscape design. Design, construction and management of sustainable transport infrastructures in planning strategies, specifically for large metropolitan areas; tools for the urban and landscape project. Participatory mechanisms, and regulatory procedures applied to regional planning and transport infrastructures organization; relationships among different level plans and sectorial projects and interventions required integration. Transport infrastructures solutions in urbanized areas and outside the cities. Study and development of transport infrastructures solution for mitigating the urban heat island. Characterization procedures suitable for evaluating sustainability of solutions and materials for transport infrastructures. Theory, modelling, and applications to maximize low environmental impact of the transport infrastructures. Sustainable infrastructures management: monitoring, sensors, control/management systems, complex modelling (digital twins) and simulation.
Learning goals	The main aim of the course is acquiring and developing knowledge about theories, techniques and methods of analysis, interpretation and design of the contemporary landscape and technics of infrastructures. Teaching and learning activities will focus on theories of landscape, contemporary city design, transport infrastructure, as well as on techniques regarding functional layouts and formal composition of the city space and landscape infrastructure. Furthermore, the course aims at boosting transversal skills, such as independent critical thinking, capability to communicate and fully explain the project along with its conceptual fundamentals, awareness of everyone's role as a professional in complex contexts, as well as the capability to code, control and solve complex problems through ground-breaking and innovative methodologies.
Teaching methods	The lessons are held by the teacher of the course, with the help of case studies, theories, and best practices in the different topics of the issue. Frontal lecturing, using blackboard, overhead projector and video projector.
Course on transversal, interdisciplinary,	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



transdisciplinary
skills

Available for PhD
students from other
courses

Yes
 No

Prerequisites
(not mandatory)

Basic knowledge on transport infrastructures and urban planning

Examination
methods
(in applicable)

The final exam consists in a critical discussion on the topics of the course.

Suggested readings

The course materials (pdf files, lecture recordings and other materials) will be uploaded to the Moodle platform from time to time or during the course.

Additional
information

The course will take place in room "ICAR/04" (ground floor) in presence.
