Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
IT 526	Sustainability and Smart Cities	2	4	0	0	3	8

Prerequisites	
Admission Requirements	

Language of Instruction	English
Course Type	Compulsory
Course Level	Masters Degree
Objective	The aim of this course is to enable students to understand the concept of smart cities, the technological and sustainable transformation processes shaping the future of cities, and the fundamental technologies used in these processes. Within the scope of the course, topics such as smart city infrastructures, smart environment applications, autonomous vehicles, carbon footprint, and sustainability are addressed. Students are expected to develop the ability to analyze these concepts through real-world city examples and case studies. The course also aims to help students evaluate smart city solutions in the context of carbon footprint calculations, digital transformation processes, and climate change. By the end of the course, students are expected to be able to propose solutions for smart city applications by taking into account current technologies and sustainability approaches.
Content	1. Introduction to Smart City Infrastructure and Smart Cities 2. The Future of Cities and Examples of Smart Cities 3. Smart Environment 4. Autonomous Vehicles 5. Carbon Footprint 6. Carbon Footprint Calculations – Case Studies 7. Midterm Exam 8. Sustainability and Climate Change – 1 9. Sustainability and Climate Change – 2 10. Digital Transformation 11. Project Presentations
References	1. Smart Cities: Introducing Digital Innovation to Cities, Oliver Gassmann, Jonas Böhm, Maximilian Palmié, Emerald Publishing, 2019. 2. The New Science of Cities, Michael Batty, MIT Press, Nov. 2013. 3. Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia, W.W. Norton& Company, 2014. 4. Innovative Applications in Smart Cities, Alberto Ochoa, Genoveva Vargas-Solar, Javier Alfonso Espinosa Oviedo, CRC Press, 2021.

Theory Topics

Week	Weekly Contents
1	Introduction to Smart City Infrastructure and Smart Cities.
2	The Future of Cities and Examples of Smart Cities.
3	Smart Environment.
4	Autonomous Vehicles.
5	Carbon Footprint.
6	Carbon Footprint Calculations – Case Studies.
7	Midterm Exam.
8	Sustainability and Climate Change – 1.
9	Sustainability and Climate Change – 2.
10	Digital Transformation.
11	Project Presentations.