

## 1. Smart City & Sustainable Mobility

The aim of the course is to present the key issues related to the concept of smart cities and sustainable urban mobility. The course enables students to understand the interconnections between technological development, spatial planning, and transportation systems in the context of contemporary urban challenges. Particular emphasis is placed on accessible, efficient, and environmentally friendly approaches to urban mobility. As part of the course, students will become familiar with the fundamental principles of the smart city concept, mobility challenges in both developing and urbanized areas, the role of digital technologies in transport management, and examples of good practices and sustainable development strategies in cities.

## 2. Content of the course

No.	Topic	Detailed description	Number of hours
<b>CHAPTER 1 - Introduction to Smart Cities &amp; Urban Mobility Challenges</b>			
1	<b>Concept of Smart Cities</b>	Introduction to the concept of smart cities, their key features, and technological advancements.	1
2	<b>Smart Mobility: Definition and Benefits</b>	Definition and key components of smart mobility. Economic, environmental, and social benefits	1
3	<b>Smart mobility for economic growth and better quality of life</b>	The relationship between smart mobility and economic development. The role of smart mobility in reducing transportation costs and increasing economic productivity. Smart mobility as a tool for promoting inclusivity and social equity in urban environments.	1
<b>CHAPTER 2 - Sustainable and Affordable Transportation Solutions</b>			
1	<b>Sustainable Mobility Principles</b>	Introduction to sustainable mobility principles, including low-carbon transport, energy-efficient	1

		solutions, and eco-friendly urban planning. Emphasis on reducing emissions and promoting sustainable transport options in cities.	
2	<b>Affordable Public Transport Models and Non-Motorized Transport</b>	Overview of affordable public transport models such as Bus Rapid Transit (BRT), and informal transport solutions. The importance of non-motorized transport (NMT) for sustainable cities.	1
3	<b>Shared Mobility</b>	Introduction to shared mobility concepts, including carpooling, bike-sharing. Discussion of benefits such as reduced traffic congestion, cost savings, and positive environmental impact.	1
4	<b>Electrification of Transport</b>	Overview of electrification trends in urban transport. Environmental and economic benefits of electrified transport systems. The environmental and economic benefits of electrified transport systems, along with the challenges and opportunities they present.	1
<b>CHAPTER 3 - Smart Mobility Technologies &amp; Low-Cost Digital Innovations</b>			
1	<b>Mobile Technology in Smart Mobility and the Internet of Things (IoT) in Transportation Systems</b>	<p>Overview of mobile technology's role in modern transport solutions. The integration of smartphones, apps, and digital platforms in improving access to transport services, enhancing efficiency, and providing real-time information to users. Introduction to smart parking solutions enabled by IoT and mobile technology.</p> <p>Understanding the role of IoT in transportation, including its ability</p>	1

		to connect vehicles, infrastructure, and users	
3	<b>Mobile Ticketing and Fare Collection Systems</b>	Discussion of mobile ticketing and fare collection systems, which are transforming how passengers pay for transport. The benefits of mobile-based payment systems for users and operators, including convenience, security, and cost reduction. Global examples of successful implementation.	1
4	<b>Low-Cost Urban Mobility Solutions for Developing Regions</b>	Opportunities for enhancing public transportation. The impact of these solutions on urban mobility and the economy in emerging cities.	1
<b>CHAPTER 4 - Policy, Governance for Smart Mobility</b>			
1	<b>Policy for Smart Mobility</b>	Overview of transport policy development in the context of smart mobility. Support of transport policy in the adoption of sustainable and innovative transport solutions. The role of local authorities, public-private partnerships, and data management in the development of urban transport systems. The importance of transparency, accountability, and collaboration	1

		between sectors for successful smart mobility implementation.	
<b>CHAPTER 5 - Best Practices in Smart Cities and Sustainable Mobility</b>			
1	<b>Innovative Approaches to Sustainable Urban Mobility: Case Studies and Key Takeaways</b>	Introduction to best practices in integrating smart technologies and sustainable mobility solutions in urban environments. Successful case studies from cities around the world, highlighting innovative solutions in transportation, urban planning, and environmental sustainability. Comparative analysis of smart city and sustainable mobility initiatives in different cities. Identification of key factors for success, challenges faced during implementation, and how these practices can be adapted to other cities, particularly in developing regions.	2
<b>CHAPTER 6 - Future of Mobility in Developing Countries</b>			
1	<b>Innovative Transport Solutions and Emerging Technologies for Developing Economies</b>	Mobility-as-a-Service (MaaS) in developing economies. AI, blockchain, and automation – relevance for developing cities.	2