
Advanced Certificate in Smart City Governance

Smart Urban Planning and Design

Advanced Certificate in Smart City Governance: A professional certification program that provides knowledge and skills in governance, leadership, and management for smart cities.

Artificial Intelligence (AI): A computer system designed to perform tasks that typically require human intelligence, such as visual perception, speech recognition, decision-making, and language translation.

Autonomous Vehicles: Self-driving cars that use sensors, cameras, and AI to navigate roads and make decisions without human intervention.

Big Data: Large and complex sets of data that can be analyzed computationally to reveal patterns, trends, and associations, especially for making informed decisions in smart cities.

Cybersecurity: The practice of protecting internet-connected systems, including hardware, software, and data, from theft, damage, or unauthorized access.

Data Analytics: The process of examining data sets to draw conclusions about the information they contain, identifying patterns, trends, and insights to support decision-making in smart cities.

Digital Twin: A virtual replica of a physical object or system, such as a building or city, used to simulate and optimize its performance, maintenance, and operations.

E-Government: The use of electronic communication technologies to facilitate information exchange and services between government agencies and citizens, including online portals, mobile apps, and social media.

Green Infrastructure: A network of natural and semi-natural features, such as parks, green roofs, and wetlands, that provide environmental, social, and economic benefits in urban areas.

Internet of Things (IoT): A network of interconnected physical devices, vehicles, buildings, and other objects that are embedded with sensors, software, and other technologies to collect and exchange data.

Open Data: Data that is freely available to everyone to access, use, modify, and share without restrictions, except those required by law.

Smart Grid: An electrical grid that uses digital communication technologies and sensors to optimize the transmission and distribution of electricity, reduce energy waste, and improve reliability and efficiency.

Smart Mobility: The use of digital technologies, such as autonomous vehicles, ride-sharing, and bike-sharing, to improve transportation systems, reduce traffic congestion, and promote sustainable urban

development.

Smart Parking: A system that uses sensors and mobile apps to help drivers find available parking spaces, reduce traffic congestion, and promote sustainable transportation.

Smart Waste Management: The use of digital technologies, such as sensors, data analytics, and automation, to optimize waste collection, recycling, and disposal, and reduce environmental impacts.

Sustainable Urban Development: The practice of planning, designing, and managing urban areas to promote economic, social, and environmental sustainability, including green buildings, renewable energy, and public transportation.

Ubiquitous Computing: The concept of embedding computers and sensors in everyday objects and environments to create a seamless and invisible computing experience.

Urban Analytics: The use of data analytics, machine learning, and visualization tools to analyze urban data, identify trends and patterns, and support decision-making in smart cities.

Urban Data Platform: A centralized platform that collects, stores, and analyzes urban data from various sources, such as sensors, social media, and open data portals, to support decision-making in smart cities.

Urban Informatics: The interdisciplinary field that studies the intersection of information technology, data analytics, and urban planning and design, to create more livable, sustainable, and resilient cities.

Urban Resilience: The ability of urban areas to anticipate, prepare for, respond to, and recover from disruptive events, such as natural disasters, climate change, and social unrest.

Virtual Reality (VR): A computer-generated simulation of a three-dimensional environment that can be experienced through sensory stimuli, such as sight and sound, to create a realistic and immersive experience.

Waste-to-Energy: The process of converting waste materials, such as municipal solid waste, biomass, and industrial waste, into energy, such as heat, electricity, or fuel, through various technologies, such as incineration, anaerobic digestion, and gasification.

Wireless Sensor Networks (WSNs): A network of spatially distributed autonomous sensors that monitor physical or environmental conditions, such as temperature, humidity, and motion, and transmit the data wirelessly to a centralized system for analysis and decision-making.

Zero-Energy Building: A building that produces as much energy as it consumes over the course of a year, through a combination of energy-efficient design, renewable energy sources, and smart technologies.