Smart City Infrastructure and Digital Urban Planning Training Course



14 - 18 Dec 2026

Barcelona

5900 € (Per Person)

Ref: #DT4529_93969

Course Introduction / Overview:

This course provides a comprehensive exploration of the principles and practices shaping the cities of tomorrow. In an era of rapid urbanization, the integration of smart city infrastructure and digital urban planning is no longer a futuristic concept but a present-day necessity for creating sustainable, efficient, and livable environments. This program delves into the core components of smart cities, from IoT-enabled sensors and data analytics platforms to intelligent transportation systems and sustainable energy grids. As discussed by prominent thinkers like Anthony M. Townsend in his work "Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia", the course examines how technology can be leveraged to solve complex urban challenges. Participants will gain a deep understanding of the strategic frameworks, governance models, and technological tools required for successful digital urban transformation. BIG BEN Training Center has designed this curriculum to bridge the gap between theoretical knowledge and practical application, equipping professionals with the skills to lead and innovate in the dynamic field of smart urban development. This journey covers everything from initial concept and policy formation to project implementation and long-term management, ensuring a holistic mastery of the subject.

Target Audience / This training course is suitable for:

- Urban Planners and City Managers.
- Civil Engineers and Infrastructure Specialists.
- Government Officials and Public Policy Makers.
- Technology Consultants and Systems Integrators.
- Real Estate Developers and Project Managers.
- Sustainability and Environmental Officers.
- IT Professionals working in the public sector.
- Telecommunication and Network Engineers.
- Public Safety and Emergency Services Commanders.
- Transportation and Mobility Planners.

Target Sectors and Industries:

- Government and Public Administration.
- Engineering and Construction.
- Information Technology and Services.
- Telecommunications.
- Real Estate and Urban Development.
- Energy and Utilities.
- Transportation and Logistics.
- Environmental Services.
- Consulting and Professional Services.
- Public Safety and Security.

Target Organizations Departments:

- Urban Planning and Development.
- Information Technology (IT) and Digital Transformation.
- Infrastructure and Public Works.
- Strategy and Policy Making.
- Operations and City Management.
- Engineering and Technical Services.
- Project Management Office (PMO).
- Sustainability and Environmental Management.
- Transportation and Mobility Services.
- Public Safety and Emergency Response.

Course Offerings:

By the end of this course, the participants will have able to:

- Analyze the fundamental concepts and frameworks of smart cities.
- Evaluate the role of key technologies like IoT, AI, and Big Data in urban planning.
- Design strategies for smart infrastructure in energy, water, and waste management.
- Develop policies for data governance, privacy, and cybersecurity in an urban context.
- Plan and manage intelligent transportation and smart mobility solutions.
- Integrate principles of sustainability and resilience into digital urban planning.
- Assess the financial models and public-private partnerships for smart city projects.
- Formulate citizen engagement strategies to ensure inclusive urban development.
- Apply digital twin technology for urban simulation and decision-making.
- Lead the implementation of smart city initiatives from conception to completion.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be highly interactive, immersive, and application-oriented. We believe that mastering the complexities of smart city planning requires more than theoretical lectures. Therefore, the course heavily emphasizes a hands-on approach through real-world case studies of pioneering cities like Singapore, Barcelona, and Amsterdam. Participants will engage in collaborative workshops and group exercises to design solutions for simulated urban challenges, fostering teamwork and innovative problem-solving. Interactive sessions, facilitated by expert instructors, will encourage open discussions and the sharing of diverse perspectives. The curriculum incorporates practical simulations of digital urban planning tools and frameworks, allowing participants to apply learned concepts in a controlled environment. Continuous feedback is a cornerstone of our approach, with structured review sessions ensuring that participants can track their progress and refine their understanding. This blended learning environment combines expert instruction with practical application, ensuring that attendees leave with not just knowledge, but with the confidence and skills to implement smart city strategies in their own organizations.

Course Agenda (Course Units):

Unit One: Foundations of Smart Cities and Digital Urbanism

- Introduction to the Smart City Concept.
- The Evolution of Urban Planning in the Digital Age.
- Key Drivers and Challenges for Urban Transformation.
- Global Smart City Frameworks and Standards.
- The Role of Data as a Critical Urban Infrastructure.
- Understanding the Smart City Ecosystem: Stakeholders and Roles.
- Ethical Considerations and Social Equity in Smart Urbanism.

Unit Two: Core Technologies for Smart Infrastructure

- The Internet of Things (IoT) and Sensor Networks in Urban Environments.
- Big Data Analytics for Data-Driven Urban Decision-Making.
- Artificial Intelligence (AI) and Machine Learning in City Operations.
- Geographic Information Systems (GIS) for Spatial Analysis and Planning.
- Digital Twins: Creating Virtual Replicas of Urban Systems.
- 5G Connectivity and its Impact on Smart City Services.
- Cloud and Edge Computing for Urban Data Processing.

Unit Three: Smart Infrastructure Verticals

- Intelligent Transportation Systems and Smart Mobility.
- Smart Energy Grids and Sustainable Power Management.
- Smart Water Management and Leakage Detection Systems.
- Intelligent Waste Management and Collection Optimization.
- Smart Buildings and Connected Real Estate.
- Public Safety and Smart Surveillance Systems.
- Digital Health and Smart Public Services.

Unit Four: Governance, Policy, and Citizen Engagement

- Developing a Smart City Vision and Strategic Roadmap.
- Data Governance, Privacy, and Security Policies.
- Financing Smart Cities: Models and Public-Private Partnerships (PPPs).
- Regulatory Frameworks and Policy-Making for Urban Innovation.
- Fostering Citizen-Centric Design and Engagement.
- Building Digital Literacy and Inclusion.
- Measuring Success: Key Performance Indicators (KPIs) for Smart Cities.

Unit Five: Implementation, Resilience, and Future Trends

- Project Management for Smart City Initiatives.
- Integrating Legacy Systems with New Technologies.
- Case Study Analysis: Successes and Failures in Global Smart Cities.
- Building Urban Resilience through Smart Technology.
- The Future of Urban Mobility: Autonomous Vehicles and Mobility-as-a-Service.
- Circular Economy Principles in Smart City Design.
- Preparing for the Next Wave of Urban Technology and Innovation.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

As cities become increasingly reliant on digital infrastructure, what are the primary ethical considerations urban planners must address to ensure equity and prevent the creation of a digital divide among citizens?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by offering a holistic, strategy-first perspective on smart city development, moving beyond a purely technology-centric discussion. While many programs focus on specific tools or platforms, our curriculum emphasizes the critical intersection of technology, policy, and human-centric design. We teach participants not just what technologies to use, but how to build the strategic framework, governance models, and financial justification necessary for sustainable and equitable implementation. The course content is deeply rooted in real-world applicability, utilizing an extensive library of international case studies to analyze both the successes and failures of pioneering smart city projects. This provides invaluable lessons on navigating political, social, and economic complexities. Furthermore, our focus on citizen engagement and ethical considerations ensures that participants learn to build cities that are not only smart but also inclusive and resilient. The curriculum is designed to foster strategic thinking, enabling professionals to lead complex, multi-stakeholder projects and create urban environments that truly serve the needs of all residents, rather than simply deploying technology for its own sake.