# Integrated Urban Systems Design Training Course

Professional Development Training Course Outline

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|---|---|---|---|
| **Category** | Architectural Engineering | **Duration** | 10 Days |
| **Base Fee** | $3,000 USD | **Delivery Mode** | Online / On-site Hybrid |

## Course Introduction

Integrated Urban Systems Design (IUSD) is a cutting-edge, multidisciplinary training course focused on the development of smart cities, sustainable urban infrastructure, climate-resilient planning, and data-driven urban governance. Integrated Urban Systems Design Training Course equips professionals with advanced competencies in urban analytics, GIS-based planning, digital twin cities, transport integration, energy-efficient systems, and nature-based solutions. It bridges architecture, civil engineering, urban planning, environmental science, and digital technology to create future-ready cities that are inclusive, efficient, and resilient.

With rapid urbanization, cities face increasing challenges such as traffic congestion, housing deficits, climate change impacts, resource inefficiency, and informal settlement growth. This course introduces participants to systems thinking, urban informatics, AI-powered planning tools, and policy-driven design frameworks. Learners will gain hands-on exposure to real-world urban transformation projects, enabling them to design cities that are livable, scalable, low-carbon, and technologically integrated.

## Programme Curriculum

**Integrated Urban Systems Design Training Course**

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**Course Duration**

10 days

**Course Objectives**

1. Master Smart City Design Frameworks and digital urban ecosystems
2. Apply GIS & Spatial Data Analytics in urban planning
3. Design Climate-Resilient Urban Infrastructure Systems
4. Develop Sustainable Mobility and Transit-Oriented Development (TOD) models
5. Integrate Urban Energy Efficiency & Renewable Systems
6. Understand Circular Economy Principles in Cities
7. Implement AI & Machine Learning in Urban Decision-Making
8. Design Human-Centered and Inclusive Public Spaces
9. Apply Urban Water Management & Flood Resilience Strategies
10. Develop Digital Twin City Models for Simulation & Forecasting
11. Enhance Urban Governance & Policy Integration Systems
12. Design Smart Waste Management and Resource Optimization Systems
13. Build competencies in Data-Driven Urban Transformation Strategies

**Target Audience**

- Urban Planners & City Designers
- Civil & Environmental Engineers
- Architects & Landscape Architects
- Government Urban Development Officers
- Smart City Consultants & ICT Specialists
- Real Estate Developers & Infrastructure Investors
- Sustainability & Climate Change Professionals
- Graduate Students in Urban Studies, Planning, and Engineering

**Course Modules**

**Module 1: Foundations of Urban Systems Thinking**

- Systems approach to cities
- Urban complexity mapping
- Interdisciplinary planning models
- Feedback loops in urban systems
- Case Study: Singapore Urban Systems Integration

**Module 2: Smart City Technologies & Digital Infrastructure**

- IoT in urban environments
- Smart sensors and data networks
- Urban operating systems

- Digital governance platforms
- Case Study: Barcelona Smart City Model

**Module 3: GIS & Spatial Intelligence**

- Spatial data collection methods
- Mapping urban growth patterns
- Land-use analysis
- Predictive spatial modeling
- Case Study: Nairobi Urban Expansion Mapping

**Module 4: Climate-Resilient Urban Design**

- Climate risk assessment tools
- Heat island mitigation strategies
- Flood-resilient design
- Adaptive infrastructure systems
- Case Study: Rotterdam Climate Adaptation Strategy

**Module 5: Sustainable Mobility Systems**

- Public transport optimization
- Transit-Oriented Development (TOD)
- Non-motorized transport planning
- Traffic decongestion models
- Case Study: Curitiba Transport System

**Module 6: Urban Energy Systems**

- Renewable integration in cities
- Smart grids and microgrids
- Energy-efficient buildings
- Carbon-neutral urban strategies
- Case Study: Copenhagen Carbon Neutral Plan

**Module 7: Water Sensitive Urban Design**

- Urban hydrology systems
- Stormwater management
- Water recycling systems
- Flood mitigation infrastructure
- Case Study: Melbourne Water Sensitive City

**Module 8: Waste & Circular Economy Systems**

- Zero-waste city models
- Recycling infrastructure planning
- Resource recovery systems
- Circular urban economies
- Case Study: San Francisco Zero Waste Program

**Module 9: Urban Housing & Inclusive Development**

- Affordable housing models
- Slum upgrading strategies
- Social equity planning
- Mixed-income development
- Case Study: Medellín Social Urbanism

**Module 10: Digital Twin Cities**

- Simulation-based planning
- Real-time urban monitoring
- Predictive modeling systems
- Virtual city environments
- Case Study: Dubai Digital Twin Initiative

**Module 11: Urban Governance & Policy Systems**

- Multi-level governance frameworks
- Policy simulation tools
- Public-private partnerships
- Regulatory urban systems
- Case Study: London Urban Governance Model

**Module 12: Public Space & Urban Livability**

- Human-centered design principles
- Walkability and accessibility
- Urban aesthetics and placemaking
- Behavioral urban design
- Case Study: New York High Line Project

**Module 13: Data-Driven Urban Analytics**

- Big data in cities
- Predictive analytics models
- Urban performance indicators
- Real-time dashboards
- Case Study: Seoul Smart Data Platform

**Module 14: Disaster Risk & Emergency Planning**

- Urban disaster mapping
- Emergency response systems
- Resilient infrastructure planning
- Risk communication systems
- Case Study: Tokyo Earthquake Preparedness System

**Module 15: Future Cities & Innovation Labs**

- AI-driven urban futures
- Autonomous urban systems
- Experimental city prototypes
- Innovation ecosystems

- Case Study: NEOM Smart City Project (Saudi Arabia)

### Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

**Register as a group from 3 participants for a Discount**

**Send us an email: info@fineskilltrainingcenter.org or call** *+254769199797*

***Certification***

*Upon successful completion of this training, participants will be issued with a globally- recognized certificate.*

***Tailor-Made Course***

*We also offer tailor-made courses based on your needs.*

**Key Notes**

**a.** The participant must be conversant with English.

**b.** Upon completion of training the participant will be issued with an Authorized Training Certificate

**c.** Course duration is flexible and the contents can be modified to fit any number of days.

**d.** The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

**e.** One-year post-training support Consultation and Coaching provided after the course.

**f.** Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

## Upcoming Scheduled Sessions

| Start Date | End Date | Location | Price |
|---|---|---|---|
| **23 Nov 2026** | 04 Dec 2026 | Online | $2,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $3,000 |

| Start Date | End Date | Location | Price |
|---|---|---|---|
| **23 Nov 2026** | 04 Dec 2026 | Physical | $6,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $6,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $12,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $9,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $12,000 |
| **23 Nov 2026** | 04 Dec 2026 | Physical | $12,000 |

Ready to enroll or request a customized program? Book online or contact us:

**Register Online Now**

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com