



**Master's Degree Course: Smart City & Building, M.A. SCB  
(Focus on: Innovation, Technology & Design)**

Course Duration: 12 months(1 year) 2 semesters(Total Credits = 60)

**(A) Modules Outline:**

<b>Module Name</b>	<b>Module Code</b>	<b>Teaching Hours</b>	<b>Credits</b>
<b>Semester 1 Modules</b>			
Foundations of Smart Cities and Buildings	SCB 601	30 hours	10
- Introduction to Smart Cities and Urban Planning	-	10 hours	-
- Building Smart Infrastructure	-	10 hours	-
- Sustainable Design Principles	-	10 hours	-
IoT and Sensor Technologies	SCB 603	30 hours	10
- Internet of Things (IoT) Overview	-	10 hours	-
- Sensor Networks and Data Collection	-	10 hours	-
- Integration with Smart City Systems	-	10 hours	-
Urban Mobility and Transportation Systems	SCB 605	30 hours	10
- Smart Transportation Technologies	-	10 hours	-
- Traffic Management in Smart Cities	-	10 hours	-
- Sustainable Urban Mobility Solutions	-	10 hours	-
<b>Semester 2 Modules</b>			
Smart Energy Management and Renewable Solutions	SCB 602	30 hours	10
- Energy-efficient Buildings and Technologies	-	10 hours	-
- Integration of Renewable Energy Sources	-	10 hours	-
- Smart Grids and Energy Storage	-	10 hours	-
Digital Innovation and Design Thinking	SCB 604	30 hours	10
- Digital Transformation in Urban Design	-	10 hours	-
- Human-Centered Design Principles	-	10 hours	-
- Prototyping and User Testing	-	10 hours	-
Smart Governance and Data Analytics	SCB 606	30 hours	10
- Data-driven Decision Making	-	10 hours	-
- Privacy and Security in Smart Cities	-	10 hours	-
- Smart Governance Models and Policies	-	10 hours	-

**(B) How Artificial Intelligence (AI) Can Be Applied in This Course:**

**1. Predictive Urban Planning:**

- Implementing AI algorithms for predictive urban planning, analyzing data to forecast population growth, traffic patterns, and resource needs.

**2. Smart Building Automation:**

- Integrating AI in building automation systems for energy efficiency, security, and comfort, optimizing building operations based on user behavior and environmental conditions.

**3. Intelligent Traffic Management:**

- Utilizing AI in traffic management systems to optimize traffic flow, reduce congestion, and enhance overall urban mobility.

**4. Data-Driven Energy Optimization:**

- Applying AI for data-driven energy optimization in smart buildings and cities, including predictive maintenance, demand-response systems, and renewable energy integration.

**5. User-Centric Design with AI:**

- Leveraging AI in the design thinking process, using data analytics to understand user behavior, preferences, and needs for more effective and user-centric smart city solutions.

**6. Governance and Decision Support:**

- Using AI for data analytics in smart governance, facilitating informed decision-making, and addressing challenges related to privacy and security in smart city initiatives.

By incorporating AI into the Smart City & Building course, students can explore innovative ways to enhance urban living through the integration of technology, design, and sustainable practices.