

Unit 3: Technology usage as a solution

3.3. Advanced Technologies of the Smart Cities

Duration: 45 minutes

Teaching topic: Exploring the Advanced Digital Infrastructure of the Smart Cities

- **Sub-topic 1:** Smart Cities' Leaders and Examples of Advanced Technologies
- **Sub-topic 2:** Challenges, Considerations, and a Glimpse of Sustainable Technologies

Learning Aims:

- To inform students about the characteristics and the components of a smart city.
- Briefly showcase the technologies used in the top 3 Smart Cities of the World so they can get a general idea of the various implementations advanced technology can have and will have in the future.
- To raise awareness about the challenges and considerations which arise from the exploitation of technology in the fabrication of smart cities.

Methodology:

- Canva Presentation (30 minutes)
- Interactive Educational Activities (10-15 minutes)

Sub-Topic One: Smart Cities' Leaders and Examples of Advanced Technologies

Duration: 15 minutes

Content: This section will focus on informing students about the characteristics and the components of a smart city. Additionally, it will briefly showcase the technologies used in the top 3 Smart Cities of the World (as these have been announced by the IMD Smart City Observatory) so they can get a general idea of the various implementations advanced technology can have and will have in the future.

Methodology

- Watch part of the presentation (slides 1-12) + video included in the presentation (12-15 minutes)

Material

- PowerPoint Presentation: [Unit 3.3 Advanced Technologies of the Smart Cities](#)
- Internet Connection

Sub-Topic Two: Challenges, Considerations, and a Glimpse of Sustainable Technologies

Duration: max 30 minutes

Content: This section presents the challenges faced due to the design and development of smart cities. The four concerns outlined in this section are privacy

concerns, cybersecurity-related concerns, socio-economic concerns, and environmental concerns. This topic concludes with a few considerations as a starting point for tackling the current issues which arise from the major role that IoT technologies play in Smart Cities.

Methodology


- Watch the rest of the presentation (slides 12-23) (15 minutes)
- Interactive Educational activities (10-15 minutes)

Material

- Powerpoint Presentation [Unit 3.3 Advanced Technologies of the Smart Cities](#)
- Internet Connection
- Interactive Educational activities (Fill in the blanks + multiple choice questions)

Learndash Activities

Fill in the Blanks (5 questions)

Quiz Title:	Smart Technologies in Smart Cities
Add a background image (optional)	 <p>Quiz Picture</p>

Answer (What the Admin Sees)	A truly smart city is one that prioritizes the well-being of its citizens and creates a harmonious balance between {sustainability} and technology.
User Sees	A truly smart city is one that prioritizes the well-being of its citizens and creates a harmonious balance between _____ and technology.
Answer (What the Admin Sees)	A smart city should include {green} spaces, low {levels} of pollution, medical services, smart buildings and smart public {transportation} such as electric buses and light rail.
User Sees	A smart city should include _____ spaces, , low _____ of pollution, medical services, smart buildings and smart public _____ such as electric buses and light rail.

Answer (What the Admin Sees)	Currently, Norway is developing the Urban Water Shuttle to tackle the problem of toxic {emissions} and traffic congestion.
User Sees	Currently, Norway is developing the Urban Water Shuttle to tackle the problem of toxic _____ and traffic congestion.

Answer (What the Admin Sees)	IoT is crucial for collecting and analysing data from sources such as traffic cameras, {sensors} and other {public} infrastructure for the acquiring of real-time insights in order to implement sustainable and smart solutions.
User Sees	IoT is crucial for collecting and analysing data from sources such as traffic cameras, _____ and other _____ infrastructure for the acquiring of real-time insights in order to implement sustainable and smart solutions.

Answer (What the Admin Sees)	LiDAR is a remote sensing technology that uses {laser}light to measure distance for mapping, geospatial and other purposes.
User Sees	LiDAR is a remote sensing technology that uses _____ light to measure distance for mapping, geospatial and other purposes.

Multiple Choice Questions (5 questions)

1. Which digital technology is particularly associated with the connectivity and data exchange among various systems in the smart urban environment?
<ul style="list-style-type: none"> Artificial Intelligence 4D Imaging Internet of Things
2. How does artificial intelligence contribute to enhancing efficiency and sustainability in smart cities?
<ul style="list-style-type: none"> By optimizing traffic flow, reducing congestion, and improving transportation systems. By providing entertainment options and enhancing virtual reality experiences for residents. By managing public parks and recreational spaces to promote community well-being
3. The top 3 smart cities for 2023 are:
<ul style="list-style-type: none"> Oslo, Hong Kong, Beijing Canberra, Zurich, Oslo



- Sidney, Zurich, Singapore

4. Some of the most crucial factors that should be taken into consideration when building smart cities are:

- Aesthetics, functionality, and public art
- Privacy, accessibility, and data security
- Connectivity, waste management and disaster response technologies

5. Artificial Intelligence can be successfully incorporated into the Healthcare sector for the digital supervision and safety of citizens.

- True
- False
- Due to personal data, AI cannot use patient data