PROBLEM DEFINITION AND DESIGN THINKING

Title: Urban Planning and Designing

Problem statement:

Accelerated urbanization
in urban areas worldwide has resulted in a myriad of issues, such as congestion, poor infrastructure, poor land use, traffic jams, environmental degradation, and reduced quality of
life. Conventional methods of urban planning tend to ignore the dynamic requirements of expanding urban populations
and are inadequate in terms of promoting sustainability, inclusiveness, and resilience.

There is a critical need
for new urban design and planning concepts that strike
a balance between economic growth and environmental sustainability, social justice, and technology integration.
The task is to redesign cities as more human, inclusive,
and responsive cities for present and future
generations while overcoming the particular geographical, cultural, and socioeconomic realities of every city.

Target Audience:

1.Urban Planners and Government Administrators – Responsible
for the formulation and execution of city growth policies, zoning regulations, and infrastructure development.

2.Architects and Civil Engineers – Central professionals
in preparing and carrying out urban buildings and public
spaces as per planning regulations.

3.Real Estate Developers and Investors – Interested parties with concerns regarding land usage, urban expansion, and development opportunities as per planning strategies.

4.Community Residents and Advocacy Groups – Citizens and groups impacted by urban development, who contribute through public participation and feedback.

Objectives:

1.Ensure efficient land, resource, and energy use to produce environmentally responsible and climate-resilient urban environments.

2.Enhance Quality of Life

Create inclusive, accessible, and livable cities that put the public health, safety, green spaces, and community well-being first.

3.Improve Infrastructure and Mobility

Create comprehensive transportation systems, utilities, and public services that enhance connectivity, alleviate congestion, and encourage walkability.

4.Promote Economic and Social Equity

Facilitate balanced growth through affordable housing, varied economic opportunities, and equal access to urban amenities for all citizens.

Design Thinking Approach:

Empathize:

The core of the problem lies in urbanizing as the daily experiences of residents—such as long commutes, lack of green spaces, or poor access to basic services—to design cities that genuinely improve lives.

Key Chain User:

1. Accessibility & Mobility
2. Safety & Security
3. Affordability & Housing
4. Environmental Quality

Define:

The solution should be able to identify the pros and cons of the current urbanization and rectify it with the current findings. The urban planning should increase more green places inside the city and utilize all the places during urbanization.

Key features required:

1. Mixed Land Use
2. Efficient Transportation Network
3. Green and Open spaces
4. Affordable and Diverse Housing
5. Human- Centered Design
6. Smart Infrastructure
7. Cultural and Civic Identity

Ideate:

1. 15-minute city planning to ensure essential services are within walking or biking distance.
2. Integration of green and blue infrastructure for climate resilience and better urban ecosystems.
3. Mixed-use and mixed-income developments to promote diversity and vibrancy.
4. Smart mobility solutions with transit-oriented design and reduced car dependency.

5. Community engagement in planning to reflect local needs and culture.

Prototype:

"Sustainable Mixed-Use Urban Block"** — A green, walkable, tech-powered neighborhood that incorporates housing, workplaces, transport, and community facilities.

Key Components:

1. Land Use Layout – Residential, commercial, recreational, and green zone zoning.
2. Mobility Network – Pedestrian ways, bike paths, transit stops, and restricted car entry.
3. Public Space Design – Parks, plazas, community gardens, and interactive open spaces.
4. Sustainable Infrastructure – Green roofs, solar panels, rainwater harvesting, waste segregation units.

Test:

The prototype is tested by assessing its functionality (e.g., transport, green spaces, housing) through simulations, surveys, and data collection. Evaluate sustainability through real-world impact on energy, water, waste, and community engagement.

Testing Goals:

1. Assess functionality and sustainability of infrastructure, mobility, housing, and public spaces through real-world testing and data analysis.
2. Evaluate inclusivity and community engagement to ensure the design meets diverse user needs and encourages active participation.