AMALTHEA '25

AN AMALTHEA '25 EVENT

CITYTHON

PRESENTED BY GUDM

OFFICIAL RULEBOOK

VENUE: AB11/102

DATE: 8th November

TIME: 10 AM onwards

FEEL FREE TO CONTACT: Bhuvi (70429 04767)

INTRODUCTION

City–thon presented by GUDM (Gujarat Urban Development Mission) is an urban planning event held during Amalthea, IIT Gandhinagar's annual technical s ummit. In this event, the participants will be given two problem statements to create a master plan for one of them. One is based on creating a master plan for IIT Gandhinagar, the other is a road network problem that needs to be solved to create the most efficient road network with minimal traffic. Participants can choose to solve any one of the given problems and they will be judged according to their chosen problem statement.

ELIGIBILITY & TEAM FORMATION

- Open to all college students (any discipline).
- Each team must consist of a maximum of 4 members.
- Each participant can be a member of only one team.
- Participants will be grouped according to the problem statement they select during registration. Each group will be evaluated using track–specific judging criteria, and their offline presentations will follow distinct formats tailored to the nature of their chosen challenge.
- Cross–college team formation is allowed.

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PROBLEM 1

Design a masterplan for a 399-acre sustainable university campus on the banks of the Sabarmati River, reflecting the core vision and sustainability goals of IIT Gandhinagar. The team is supposed to design a map/ layout of IIT Gandhinagar with the help of AutoCAD software. The team is advised to use QGis (or any other GIS software) to aid them in judging the terrain on the campus. It has to be designed based on the constraints provided. Participants can also use Google Earth Pro and its polygon features to describe areas.

The team has to come prepared with their layout and presentation explaining the same.

1. Mandatory components to include in your plan:

- Academic area
- Student hostel area
- Housing blocks for faculty and staff
- Sports complex and recreational areas
- Mess (dining halls)
- Guest house
- Libraries
- Medical centre
- Amphitheatres
- Commercial areas and retail outlets
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- Power substation
- On-campus solar energy systems (energy self-sufficiency)
- Water supply and purification
- Sewage treatment
- Flood prevention measures
- Rainwater harvesting and Parking Areas
- Easy road connectivity and access
- There should be a minimum of two entry/exit gates.

2. Vision and Scoring Priorities

- Human-focused compactness:

Prioritize walkability, minimize car use, and encourage community interaction. The hostel area and the academic area can be at a distance of a maximum of 1 km.

- Ecological & Resource Efficiency:

Preserve and integrate the unique terrain, ravines, and biodiversity. Support on-campus food cultivation. Target zero water/energy import and zero waste export, using robust recycling and renewables.

- Social Inclusion:

Design for equity and well-being of all campus users, using participatory planning.

- Climate and Risk Adaptation:

Address regional climate using passive/active solutions, include robust flood/rainwater management, and plan for resilience.

3. Site constraints (CRITICAL):

- The campus is close to the Sabarmati River and has deeper bedrock compared to surrounding areas, making it even more prone to flooding and landslides.
- The terrain is difficult and filled with ravines. Ravines cannot be built upon, they are protected ecological features and present major engineering risk.
- Filling ravines with soil is discouraged: loose soil is prone to landslides and instability, increases construction costs, and may worsen campus flooding.
- Only ~55% of land is actually developable, design accordingly.
- Plan for phased expansion: at least 2,400 students to start, up to 6,000 in future

Figure 6: Survey Plan

4. Try to incorporate features adding functionality and feasibility for example: A mess should ideally be within 3-4 minutes walking distance from every student hostel, which means approximately 300 meters at most.

SUBMISSION

- Submission Requirements:

1. Concept Sketch: Visually structured layout (zones, open spaces, connectivity).
2. PPT: Include overview, feasibility, impact, and design narrative.

- Submission Method: Upload both via Google Form by the deadline.
- Presentation: Shortlisted teams present PPT offline with Q&A.
- General Guidelines–
  - Teams must adhere to the submission deadlines; late entries will not be considered.
  - Judges' decisions will be final and binding.
- Judging Criteria–
  - Sustainability & Innovation: 25%
  - Functionality & Feasibility: 25%
  - Design & Aesthetics: 20%
  - Presentation & Clarity: 15%
  - Adherence to Constraints: 15%

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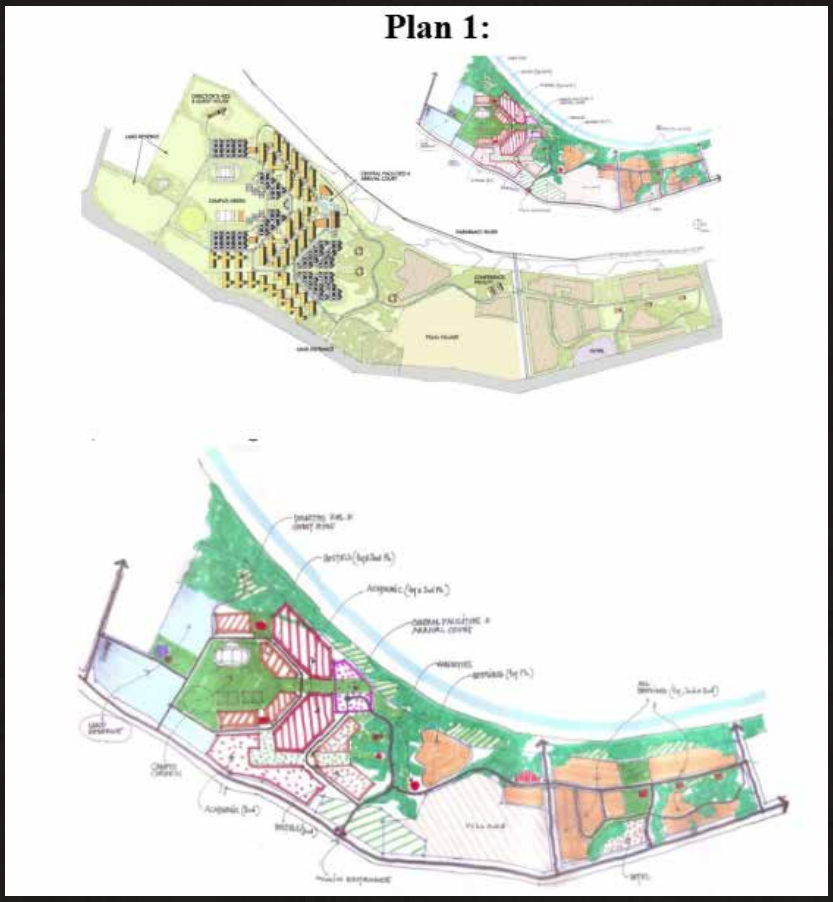
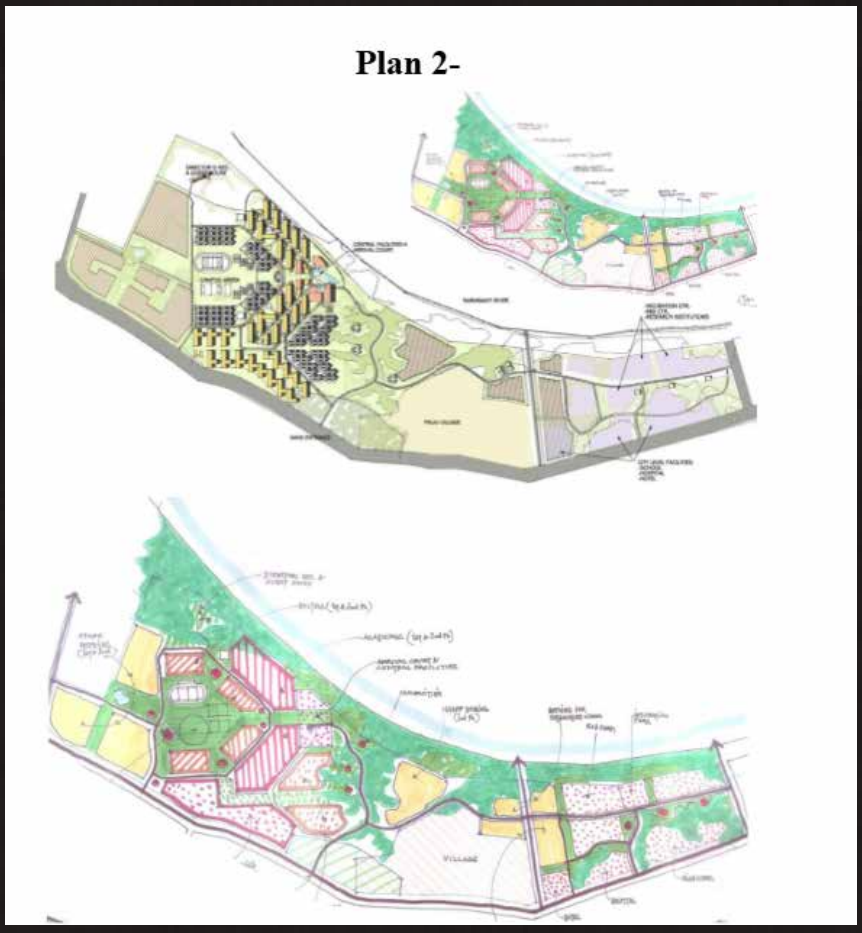
Example plans for problem statements

Plan 1:



Plan 2-



Plan 3-


CENTRAL FACILITIES &
ARRIVAL COURT


STUDENTS'
HOSTELS
ACADEMIC
COMPACT C3-1
SPORTS FACILITIES
ACADEMIC
STAFF RESIDENCES

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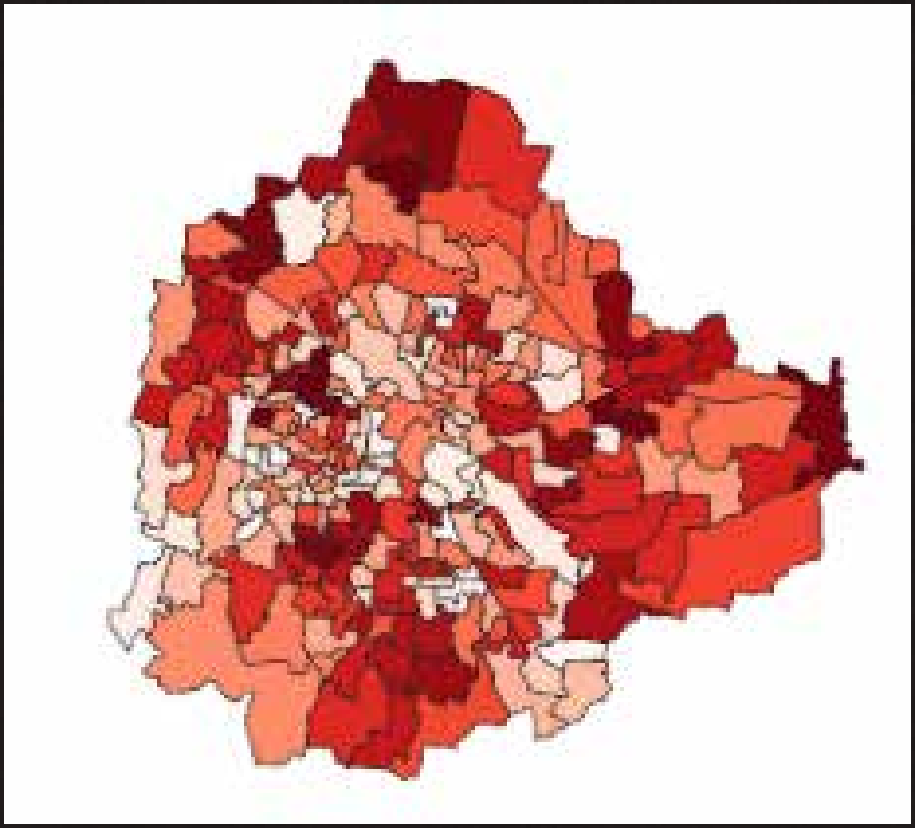
PROBLEM 2

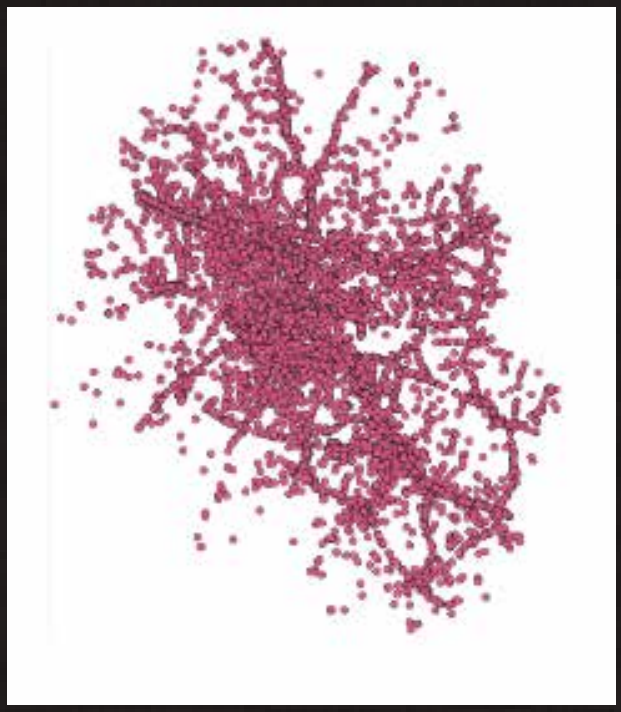
Bangalore, known as the Silicon Valley of India, faces severe traffic congestion and a high rate of road traffic accidents. The city's rapid urbanization has overwhelmed its road infrastructure, leading to frequent traffic jams and safety hazards. Participants are tasked with analyzing the current traffic situation and proposing data-driven modifications to the road network to improve traffic flow and reduce accidents.

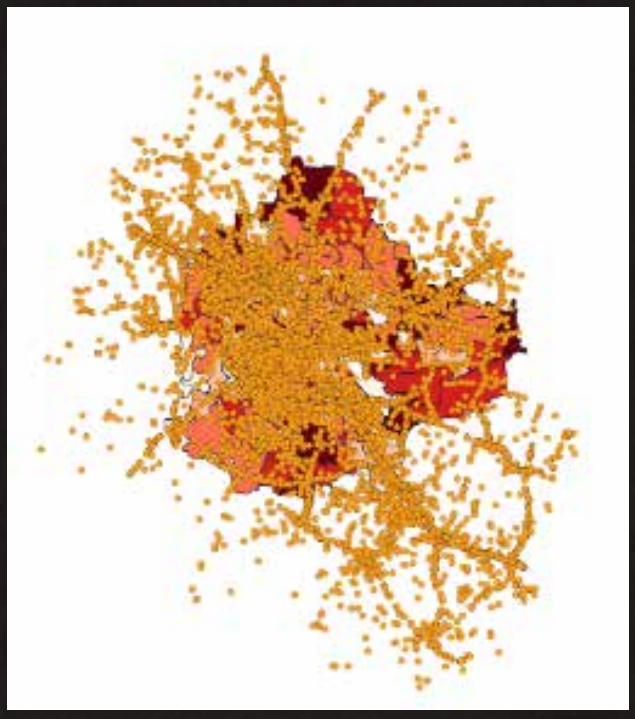
Participants are provided with the following data:

1. Population heat map of Bangalore.

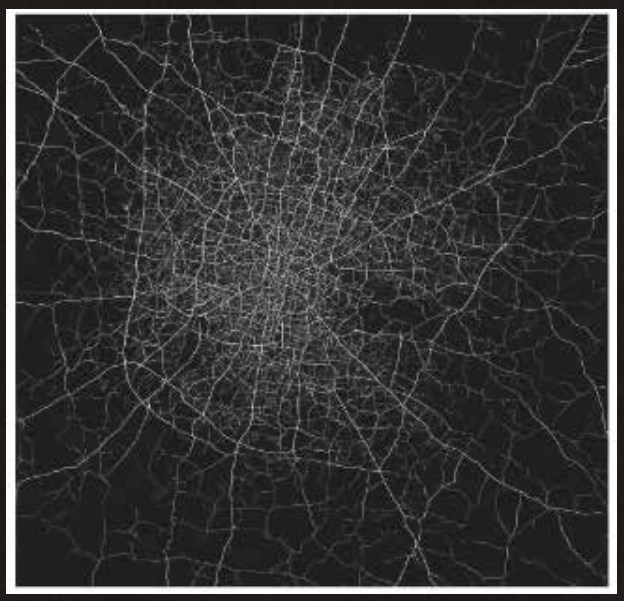


2. Scatter plot showing the locations of all road traffic accidents in Bangalore.





3. Current road network of Bangalore



Participants are encouraged to use Google Maps and OpenStreetMap for detailed exploration

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TASK:

- Analyze the provided data to identify high-density population areas and accident hotspots.
- Propose changes to the road network, such as new roads, modifications to existing roads, or innovative traffic management strategies.
- Justify your proposals with data and visualizations.

KEY CONSIDERATION:

- Identify areas with high population density and their impact on traffic.
- Analyze the distribution and frequency of traffic accidents.
- Propose changes to the road network that could alleviate traffic congestion and improve safety.

SUBMISSION REQUIREMENTS:

- Concept Map: Visually represent your proposed changes to the road network.
- PPT Presentation: Include:
  - Overview of current traffic issues
  - Data analysis and findings
  - Proposed solutions and their expected impact
  - Feasibility and implementation plan
- Submission Method: Upload both the concept map and PPT via Google Form by the deadline.

PRESENTATION:

Shortlisted teams will present their PPT offline, followed by a Q&A session.

Judging Criteria–

- **Data Analysis & Insight: 15%**
- **Innovation & Feasibility: 25%**
- **Impact on Traffic Flow: 25%**
- **Safety Improvements: 25%**
- **Presentation & Clarity: 10%**

For further information, contact–

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