

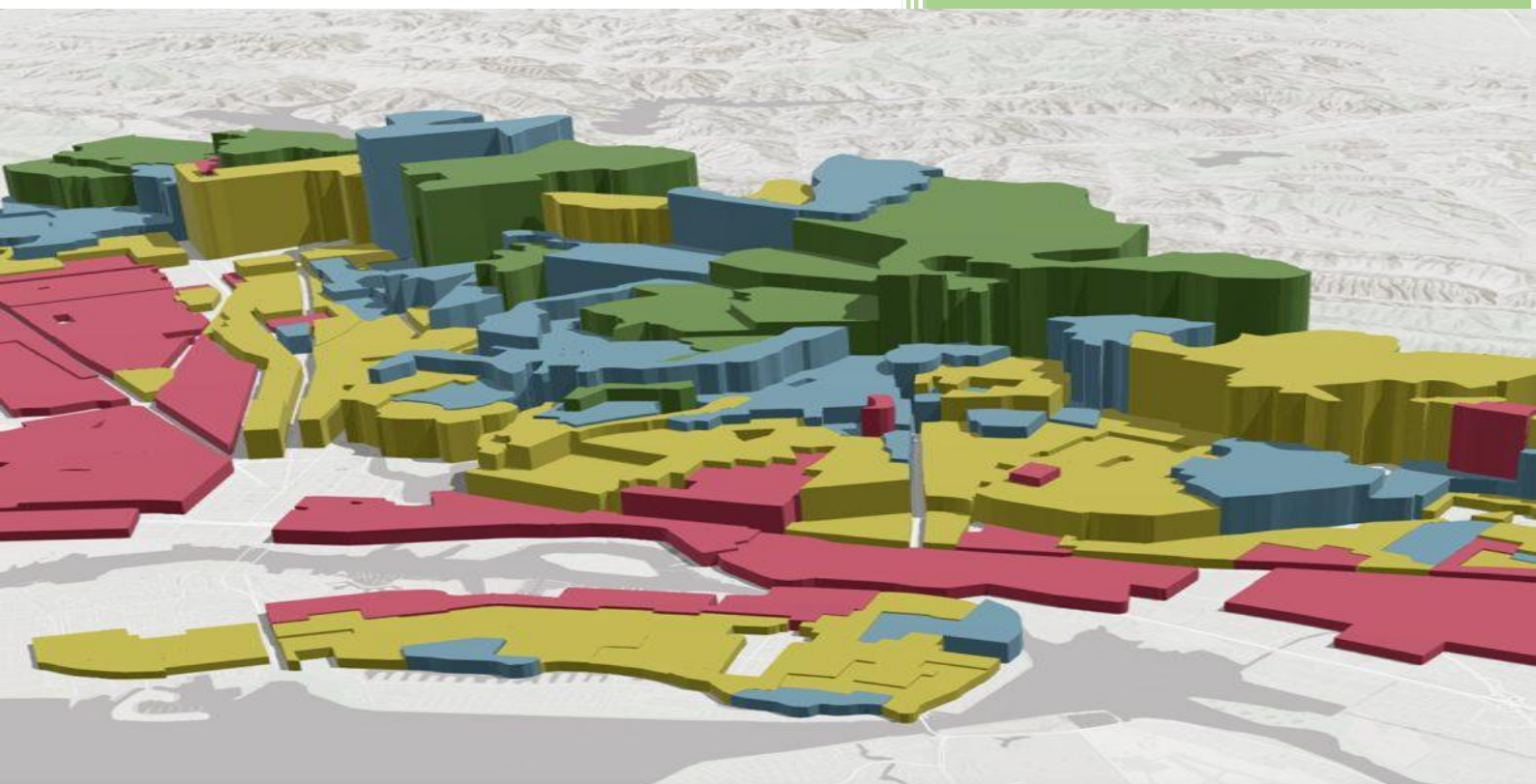
Executive Development Training Programme

Application of Geospatial Techniques for Spatial Planning

**TRAINING OUTCOME
REPORT**

11 -13 December

ACUPCB-SPAV



Summary of Executive Development Program (EDP)

The Executive Development Programme (EDP) on “Application of Geospatial Techniques for Spatial Planning” was conducted over three days with the objective of enhancing the technical and analytical capabilities of professionals and academicians in the application of geospatial technologies for urban and regional planning. The programme was structured to balance conceptual understanding with practical exposure, enabling participants to effectively integrate geospatial tools into planning practice.

The programme commenced with sessions introducing the fundamentals of Remote Sensing and Geographic Information Systems (GIS), emphasizing their principles, data sources, and relevance in spatial planning. Participants were introduced to satellite-based remote sensing, focusing on image procurement methods and the importance of different spatial and spectral resolutions in planning analysis. The first day also featured a session on drone-based remote sensing, highlighting its growing significance in urban management, monitoring, and data generation. The day concluded with a hands-on session that allowed participants to engage directly with geospatial datasets and tools.

The second day focused on GIS data characteristics and base map preparation, which are critical for planning accuracy and decision-making. Sessions covered data structure, accuracy, scale, and usability of spatial data. Special emphasis was placed on base map preparation in accordance with AMRUT guidelines, providing participants with clarity on national standards and compliance requirements. Extended hands-on sessions enabled participants to apply theoretical concepts in preparing base maps, thereby strengthening their practical GIS skills.

The third day advanced towards spatial analysis and applied planning techniques. Participants were introduced to spatial statistics, facilitating an understanding of spatial patterns and analytical methods used in planning studies. A session on Spatial Data Infrastructure (SDI) highlighted standards, data sharing, and institutional frameworks necessary for effective geospatial governance. The programme concluded with thematic applications of geospatial techniques in urban and regional planning, supported by a final hands-on session that integrated learning from all three days.

Overall, the Executive Development Programme successfully provided a comprehensive overview of geospatial techniques, combining theory, standards, and hands-on practice, and contributed significantly to capacity building in spatial planning and decision support systems.

Brief of sessions covered under EDP

DAY 1, 11th DECEMBER, 2025, THURSDAY

FORENOON SESSION

Sl.No	Session	Expert
1	Fundamentals of Remote Sensing and GIS: Concepts, Principles, and Applications	Dr. Valliappan AL, Faculty, SPA Vijayawada
2	Satellite based Remote Sensing – Image Procurement and Resolutions	Mr. Abhishek Arepalli, Technical Officer, SPA Vijayawada

AFTERNOON SESSION

Sl.No	Session	Expert
3	Drone-Based Remote Sensing: Urban Management Applications	Dr. Pranav R T Peddinti and Dr. Harish Puppala, Faculty, SRM University

HANDS-ON SESSION

Sl.No	Session	Expert
1	Hands-On training:	Dr. Pranav R T Peddinti and Dr. Harish Puppala, Faculty, SRM University

DAY 2, 12th DECEMBER, 2025, FRIDAY

FORENOON SESSION

Sl.No	Session	Expert
1	GIS Data Characteristics: Understanding Structure, Accuracy, and Usability	Ms. Jaldi Anitha, Junior Superintendent (Technical), SPA Vijayawada
2	Base Map Preparation in Compliance with AMRUT Guidelines	Ms. Priya, Scientist, NRSC-Hyderabad

HANDS-ON SESSION

Sl.No	Session	Expert
3	Hands-On training: Base Map Preparation	Ms. Pushyami Neduri, Faculty, SPA Vijayawada

DAY 3, 13th DECEMBER, 2025, SATURDAY

FORENOON SESSION

Sl.No	Session	Expert
1	Introduction to Spatial Statistics	Ms. Monica Sekar, Faculty, SPA Vijayawada
2	Building Spatial Data Infrastructure: Standards and Practices	Dr. Mahavir, Rtd. Faculty, SPA Delhi

AFTERNOON SESSION

Sl.No	Session	Expert
3	A. Geospatial Techniques for Thematic assessments in Urban and Regional Planning	Mr. Sandeep Peeke, Faculty, SPA Vijayawada
	B. Geospatial Techniques for Thematic assessments in Urban and Regional Planning	Mr. Ajay Sarath, Research Assistant, TRP Project and Ms. Swathikka, Junior Research officer, AMRUT Centre

HANDS-ON SESSION

Sl.No	Session	Expert
4	Hands-On training	Dr.Valliappan AL; Mr.Ajay Sarath; Ms. Swathikka

Contents

Summary of Executive Development Program (EDP)	1
Brief of Sessions of Capacity Building Covered	2
Contents	4
List of Figures	5
EDP-Day Wise Program Schedule	6
EDP Trainer's Team	8
Inauguration of EDP on 11 th December 2025	9
Session Proceedings	11
Day 1	12
Session 1: Fundamentals of Remote Sensing and GIS: Concepts, Principles, and Applications	12
Session 2: Satellite based Remote Sensing – Image Procurement and Resolutions	13
Session 3: Drone-Based Remote Sensing: Urban Management Applications	14
Hands-on Session	16
Day 2	17
Session 1: GIS Data Characteristics: Understanding Structure, Accuracy, and Usability	17
Session 2: Base Map Preparation in Compliance with AMRUT Guidelines	18
Hands-on Session	19
Day 3	20
Session 1: Introduction to Spatial Statistics	20
Session 2: Building Spatial Data Infrastructure: Standards and Practices	21
Session 3: Geospatial Techniques for Thematic assessments in Urban and Regional Planning	22
Hands-on Session	24
Participant's Profile	25
Participant's Response	27
Participant's Feedback	28
Valedictory Session	30
Brouchure	34
Poster	35
Training Manual	36

List of Figures

Figure 1: Chief Patron Prof. Dr. Ramesh Srikonda in the Inaugural session of the EDP_02.....	09
Figure 2: Participants and Experts attending the Inaugural Session.....	10
Figure 3: Session 1 delivery by the expert Dr. Valliappan AL.....	12
Figure 4: Session by Mr. Abhishek Arepalli on Day 1.....	13
Figure 5: Session by Dr. Pranav R T Peddinti on Day 1.....	14
Figure 6: Session by Dr. Harish Puppala on Day 1.....	15
Figure 7: Live Demonstration by Dr. Pranav & Dr. Harish Puppala on Day 1.....	15
Figure 8: Hands-on Session by Dr. Harish Puppala on Day 1.....	16
Figure 9: Session by Ms. Jaldi Anitha on Day 2.....	17
Figure 10: Session by Ms. Priya Madhuri on Day 2.....	18
Figure 11: Hands-on Session by Ms. Pushyami Neduri on Day 2.....	19
Figure 12: Session by Ms. Monica Sekar on Day 3.....	20
Figure 13: Session by Dr. Mahavir on Day 3.....	21
Figure 14: Session by Mr. Sandeep Peeke on Day 3.....	22
Figure 15: Session by Mr. Ajay Sarath on Day 3.....	23
Figure 16: Session by Ms. Swathikka S on Day 3.....	23
Figure 17: Hands on Session by Ms. Swathikka S, Ajay Sarath and Valliappan AL on Day 3.....	24
Figure 18: Valedictory Session Chaired by Prof. Dr. Ayon K. Tarafdar (Head, CUPCB), and Dr. Mahavir and Prof. Dr. Ramesh Srikonda (Director, SPA Vijayawada).....	30
Figure 19: Memento distribution by the Director, SPAV to the Experts.....	31
Figure 20: Certificate and memento distribution to the Participants.....	32
Figure 21: Group Photo of the Training Batch with Director, Head ACUPCB, Experts and Participants.....	33

EDP Day wise Programme Schedule

Schedule

DAY 1, 11th DECEMBER, 2025, THURSDAY

10:00 AM — 10.15 AM Inaugural Session

TEA: 10:15 AM — 10:30 AM

10.30 AM - 01:00 PM | FORENOON SESSION

Time	Session	Expert
10:30 AM - 11:45 AM	Fundamentals of Remote Sensing and GIS: Concepts, Principles, and Applications	Dr. Valliappan AL, Faculty, SPA Vijayawada
11:45 AM - 01:00 PM	Satellite based Remote Sensing – Image Procurement and Resolutions	Mr. Abhishek Arepalli, Technical Officer, SPA Vijayawada

LUNCH: 01:00 PM — 02:00 PM

02.00 PM - 03:15 PM | AFTERNOON SESSION

Time	Session	Expert
02:00 PM - 03:15 PM	Drone-Based Remote Sensing: Urban Management Applications	Dr. Pranav R T Peddinti and Dr. Harish Puppala, Faculty, SRM University

TEA: 03:15 PM — 03:30 PM

03:30 PM - 05.15 PM | HANDS-ON SESSION

Time	Session	Expert
03:30 PM - 05:15 PM	Hands-On training:	Dr. Pranav R T Peddinti and Dr. Harish Puppala, Faculty, SRM University

DAY 2, 12th DECEMBER, 2025, FRIDAY

09.30 AM - 01:00 PM | FORENOON SESSION

Time	Session	Expert
09:30 AM - 11:00 AM	GIS Data Characteristics: Understanding Structure, Accuracy, and Usability	Ms. Jaldi Anitha, Junior Superintendent (Technical), SPA Vijayawada

TEA: 11:00 AM — 11:30 AM

Time	Session	Expert
11:30 AM - 01:00 PM	Base Map Preparation in Compliance with AMRUT Guidelines	Ms. Priya, Scientist, NRSC-Hyderabad

LUNCH: 01:00 PM — 02:00 PM

02.00 PM - 03:30 PM | HANDS-ON SESSION

Time	Session	Expert
02:00 PM - 03:15 PM	Hands-On training: Base Map Preparation	Ms. Pushyami Neduri, Faculty, SPA Vijayawada

TEA: 03:15 PM — 03:30 PM

03:30 PM - 05.30 PM | HANDS-ON SESSION

Time	Session	Expert
03:30 PM - 05:30 PM	Hands-On training: Base Map Preparation	Ms. Pushyami Neduri, Faculty, SPA Vijayawada

DAY 3, 13th DECEMBER, 2025, SATURDAY

09.30 AM - 1:00 PM | FORENOON SESSION

Time	Session	Expert
09:30 AM - 11:00 AM	Introduction to Spatial Statistics	Ms. Monica Sekar, Faculty, SPA Vijayawada

TEA: 11:00 AM — 11:15 AM

Time	Session	Expert
11:15 PM - 12:45 PM	Building Spatial Data Infrastructure: Standards and Practices	Dr. Mahavir, Rtd. Faculty, SPA Delhi

LUNCH: 12:45 PM — 01:45 PM

01.45 PM - 03:15 PM | AFTERNOON SESSION

Time	Session	Expert
01:45 PM - 03:15 PM	A. Geospatial Techniques for Thematic assessments in Urban and Regional Planning	Mr. Sandeep Peeke, Faculty, SPA Vijayawda
	B. Geospatial Techniques for Thematic assessments in Urban and Regional Planning	Mr. Ajay Sarath, Research Assistant, TRP Project and Ms. Swathikka, Junior Research officer, AMRUT Centre

TEA: 03:15 PM — 03:30 PM

03:30 PM - 04:30 PM | HANDS-ON SESSION

Time	Session	Expert
03:30 PM - 04:30 PM	Hands-On training	Dr.Valliappan AL; Mr.Ajay Sarath; Ms. Swathikka

04:30 PM — 05.30 PM Valedictory Session

EDP Trainers Team

Patrons

Dr. Amogh Kumar Gupta
Chairman BoG, SPA Vijayawada

Prof. Dr. Ramesh Srikonda,
Director, SPA Vijayawada

Prof. Dr. Ayon K Tarafdar
Head, A-CUPCB-SPAV

Principal Instructor

Dr. Valliappan AL
SPA Vijayawada

Co-Principal Instructor

Dr. Prasanth Vardhan P
SPA Vijayawada

Co-Instructor

Jaldi Anitha
SPA Vijayawada

List of Experts

Mr. Abhishek Arepalli, SPA Vijayawada
Ms. Pushyami Neduri, SPA Vijayawada
Ms. Monica Sekar, SPA Vijayawada
Mr. Sandeep Peeke, SPA Vijayawada
Mr. Ajay Sarath, TRP Project, SPA Vijayawada
Ms. Swathikka, Junior Research officer, AMRUT Centre, SPA Vijayawada

List of External Experts

Dr. Mahavir, Professor (Rtd), SPA New Delhi
Dr. Pranav, Coordinator, Centre for Drone Technology, SRM University- AP
Dr. Harish Puppala, Coordinator, Centre for Geospatial Technology, SRM University- AP
Ms. Priya Madhuri, Scientist SD, NRSC, Hyderabad

Inauguration of EDP on 11th December, 2025

The Executive Development Program (CBP) commenced with a Welcome Address delivered by Dr. Valliappan AL (Principal Trainer) who warmly welcomed all participants and introduced the dignitaries gracing the occasion. He set the tone for the event by emphasizing the relevance of the program and the key discussions that would take place over the coming days.

The Inaugural Chair was honoured by the presence of Chief Patron, Prof. Dr. Ramesh Srikonda (Director, SPA Vijayawada), Prof. Dr. Ayon K. Tarafdar (Head, CUPCB, SPA Vijayawada), and Principal Trainer, Valliappan AL.



Figure 1: Chief Patron Prof. Dr. Ramesh Srikonda in the Inaugural session of the EDP_02

The Executive Development Programme was formally inaugurated by Prof. Dr. Ramesh Srikonda, who delivered the Inaugural Address. In his address, he emphasized the growing importance of geospatial technologies in informed spatial planning and evidence-based decision-making. He highlighted the role of GIS, remote sensing, and spatial analytics in addressing complex urban and regional planning challenges, and stressed the need for interdisciplinary collaboration and continuous capacity building to strengthen planning practices in the geospatial domain.

Subsequently, Prof. Dr. Ayon K. Tarafdar, Head, Centre of Urban Planning for Capacity Building (CUPCB), addressed the participants and introduced the AMRUT-funded Centre of Urban Planning for Capacity Building (A-CUPCB) at SPA Vijayawada, established through a Memorandum of

Understanding with the Ministry of Housing and Urban Affairs (MoHUA), Government of India. He highlighted the role of the Centre in strengthening capacity building and professional training in urban and regional planning, with a particular emphasis on the application of geospatial technologies for data-driven spatial planning. He also underscored SPA Vijayawada's recognition as a key A-CUPCB centre for research, training, and skill development in urban planning, reinforcing its commitment to advancing geospatial research, innovation, and informed decision-making in planning.

The session concluded with Dr. Valliappan AL (Principal Trainer) outlining the three-day program structure. He provided insights into the key themes and topics that would be covered, highlighting the interactive nature of the sessions and the expert-led discussions planned for the participants. The inaugural session set the stage for an engaging and insightful training program, encouraging participants to actively contribute to discussions and make the most of the learning experience.



Figure 2: Participants and Experts attending the Inaugural Session

Session Proceedings

The three-day Executive Development Program on Application of Geospatial Techniques for Spatial Planning was designed to provide participants with a strong conceptual foundation and practical exposure to contemporary geospatial tools and methods used in urban and regional planning.

Day 1 focused on establishing the fundamentals of geospatial technologies. The initial sessions introduced participants to the core concepts, principles, and practical relevance of Remote Sensing and GIS in spatial planning applications. Emphasis was placed on understanding satellite-based remote sensing, including image acquisition processes and the significance of spatial, spectral, temporal, and radiometric resolutions. The afternoon session highlighted the emerging role of drone-based remote sensing, demonstrating its applications in urban management, monitoring, and data generation. The day concluded with an intensive hands-on session, enabling participants to familiarize themselves with real-world datasets and workflows.

Day 2 emphasized GIS data handling and base map development. Participants gained insights into the characteristics of GIS data, including data structure, accuracy, scale, and usability for planning purposes. A dedicated session on base map preparation explained national-level standards and compliance requirements, particularly in line with AMRUT guidelines. The hands-on sessions conducted during the afternoon allowed participants to practically apply these concepts by preparing base maps, enhancing their technical competence and confidence in GIS-based planning tasks.

Day 3 advanced the learning towards analytical and integrative applications. Sessions covered the fundamentals of spatial statistics, enabling participants to understand spatial patterns, relationships, and analytical techniques relevant to planning studies. The discussion on Spatial Data Infrastructure (SDI) highlighted the importance of standards, interoperability, and institutional frameworks for effective geospatial data sharing and management. The afternoon sessions focused on applying geospatial techniques for thematic assessments in urban and regional planning, demonstrating how GIS supports evidence-based decision-making. The final hands-on session consolidated learning by integrating concepts from previous sessions. The program concluded with a valedictory session, marking the successful completion of the training.

Overall, the program effectively blended theory, practical demonstrations, and hands-on training, equipping participants with both conceptual clarity and applied skills in geospatial techniques for spatial planning.

Day 1

Session 1: Fundamentals of Remote Sensing and GIS: Concepts, Principles, and Applications

Expert name: Dr. Valliappan AL



Figure 3: Session 1 delivery by the expert Dr. Valliappan AL

This session introduced participants to the basic concepts and principles of remote sensing and Geographic Information Systems (GIS) and their relevance to spatial planning. It explained the evolution of geospatial technologies and the role of spatial data in informed planning and decision-making. Key aspects of remote sensing, including data acquisition, sensor types, and spatial, spectral, temporal, and radiometric resolutions, were discussed to highlight their importance in planning applications.

The fundamentals of GIS were covered with emphasis on data models, spatial and attribute data, coordinate systems, and map projections. Practical planning applications such as land use mapping, urban growth analysis, infrastructure planning, and environmental monitoring were highlighted to demonstrate the integration of remote sensing and GIS. The session provided participants with a clear foundational understanding for applying geospatial technologies in urban and regional planning.

Session 2: Satellite based Remote Sensing – Image Procurement and Resolutions

Expert name: Mr. Abhishek Arepalli



Figure 4: Session by Mr. Abhishek Arepalli on Day 1

The session on “Satellite-Based Remote Sensing – Image Procurement and Resolutions” provided participants with an understanding of the processes involved in acquiring satellite imagery and selecting appropriate data for planning applications. The session explained different satellite platforms and sensors, modes of data procurement, and sources of satellite imagery, along with their suitability for various spatial scales. Key types of resolution—spatial, spectral, temporal, and radiometric—were discussed in relation to image interpretation, accuracy, and usability in urban and regional planning. The session emphasized how informed selection of satellite data enhances the quality of spatial analysis and supports effective, evidence-based planning decisions.

Session 3: Drone-Based Remote Sensing: Urban Management Applications

Expert name: Dr. Pranav R T Peddinti and Dr. Harish Puppala, Faculty, SRM University

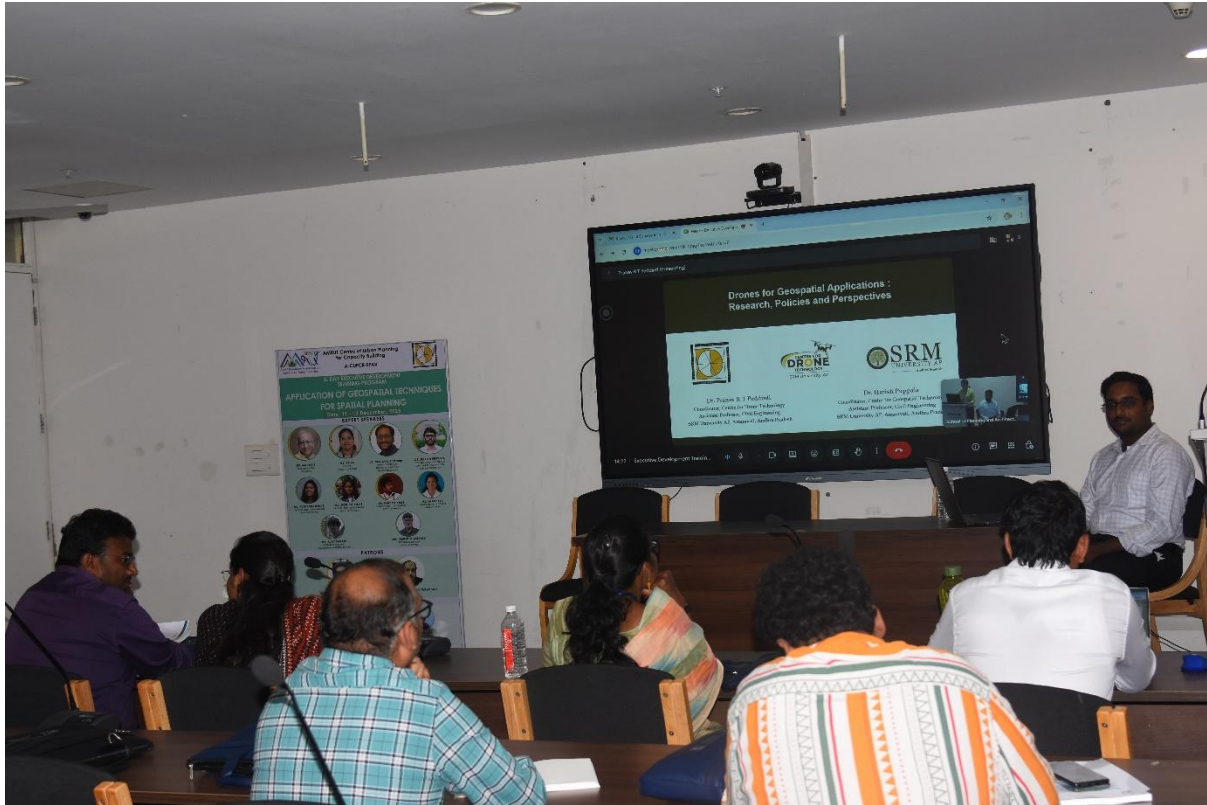


Figure 5: Session by Dr. Pranav R T Peddinti on Day 1

The session on “Drone-Based Remote Sensing: Urban Management Applications” provided participants with practical and conceptual insights into the use of unmanned aerial vehicles (UAVs) for high-resolution spatial data collection and urban analysis. The session explained the components, functioning, and operational workflows of drones, along with an overview of sensors, data capture techniques, and regulatory considerations. Emphasis was placed on urban applications such as land use mapping, infrastructure monitoring, traffic and construction surveillance, environmental assessment, and disaster management.

Live demonstrations and hands-on interaction with drone equipment helped participants understand data acquisition, image quality, and the advantages of drone-based remote sensing in generating accurate, real-time, and location-specific information for informed urban planning and management decisions.



Figure 6: Session by Dr. Harish Puppala on Day 1



Figure 7: Live Demonstration by Dr. Pranav & Dr. Harish Puppala on Day 1

Hands-on Session

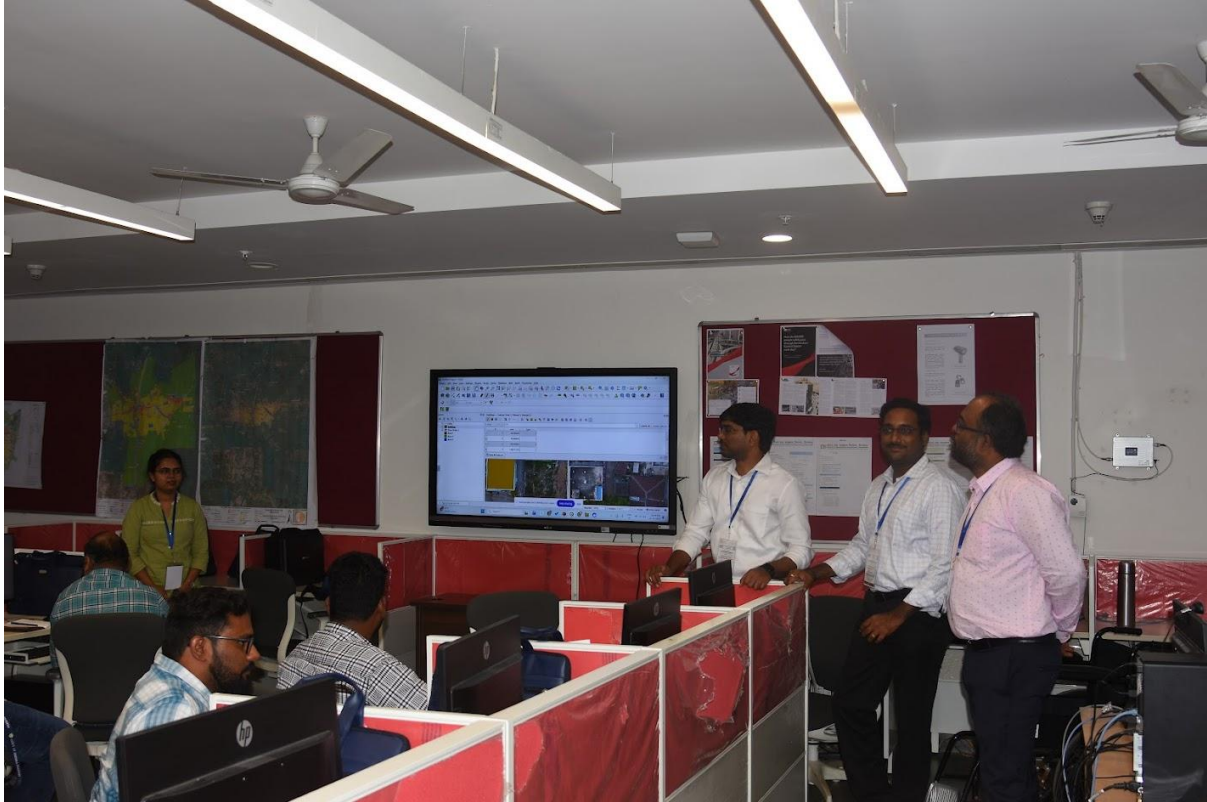


Figure 8: Hands-on Session by Dr. Harish Puppala on Day 1

Day 2

Session 1: GIS Data Characteristics: Understanding Structure, Accuracy, and Usability

Expert name: Ms. Jaldi Anitha



Figure 9: Session by Ms. Jaldi Anitha on Day 2

The session on “GIS Data Characteristics: Understanding Structure, Accuracy, and Usability” focused on building a clear understanding of the nature and quality of spatial data used in GIS-based planning. It explained different GIS data structures, including vector and raster models, and their suitability for various planning applications.

The session highlighted key aspects of data accuracy such as positional, attribute, and temporal accuracy, along with scale, resolution, and error sources. Emphasis was placed on assessing data usability for analysis and decision-making, ensuring reliability and consistency in spatial planning studies.

Session 2: Base Map Preparation in Compliance with AMRUT Guidelines

Expert name: Ms. Priya Madhuri



Figure 10: Session by Ms. Priya Madhuri on Day 2

The session on **“Base Map Preparation in Compliance with AMRUT Guidelines”** provided participants with a detailed understanding of the methodology and standards required for developing base maps for urban planning projects under the AMRUT framework.

The session explained the key components of a base map, including administrative boundaries, road networks, utilities, land use features, water bodies, and built-up areas, along with the appropriate scale, coordinate reference systems, and accuracy requirements. It also discussed suitable data sources such as satellite imagery, survey data, and secondary datasets, and highlighted procedures for data validation and integration.

Emphasis was placed on adherence to AMRUT guidelines to ensure uniformity, reliability, and usability of base maps, enabling effective planning, monitoring, and decision-making in urban infrastructure and service delivery projects.

Hands-on Session



Figure 11: Hands-on Session by Ms. Pushyami Neduri on Day 2

The hands-on session on georeferencing, digitization, and base map preparation provided participants with practical exposure to core GIS operations essential for spatial planning. Participants were guided through the process of georeferencing scanned maps and satellite images using appropriate coordinate systems and ground control points to ensure spatial accuracy.

The session also covered digitization techniques for creating vector layers such as roads, boundaries, utilities, and land use features, with emphasis on maintaining topology and minimizing common digitization errors. Using these techniques, participants prepared base maps in accordance with prescribed standards, enabling them to understand the complete workflow from raw data to a usable planning-ready base map.

Day 3

Session 1: Introduction to Spatial Statistics

Expert name: Ms. Monica Sekar



Figure 12: Session by Ms. Monica Sekar on Day 3

The session on **“Introduction to Spatial Statistics”** introduced participants to the fundamental concepts and techniques used to analyze spatial patterns and relationships in geographic data. The session explained the difference between spatial and aspatial data analysis and highlighted the importance of spatial dependence and spatial autocorrelation in planning studies. Key concepts such as point, line, and area-based analysis, spatial distribution patterns, and basic statistical measures were discussed with planning-oriented examples.

The session emphasized how spatial statistics support evidence-based decision-making by enabling planners to identify trends, clusters, and spatial variations in urban and regional contexts.

Session 2: Building Spatial Data Infrastructure: Standards and Practices

Expert name: Dr. Mahavir

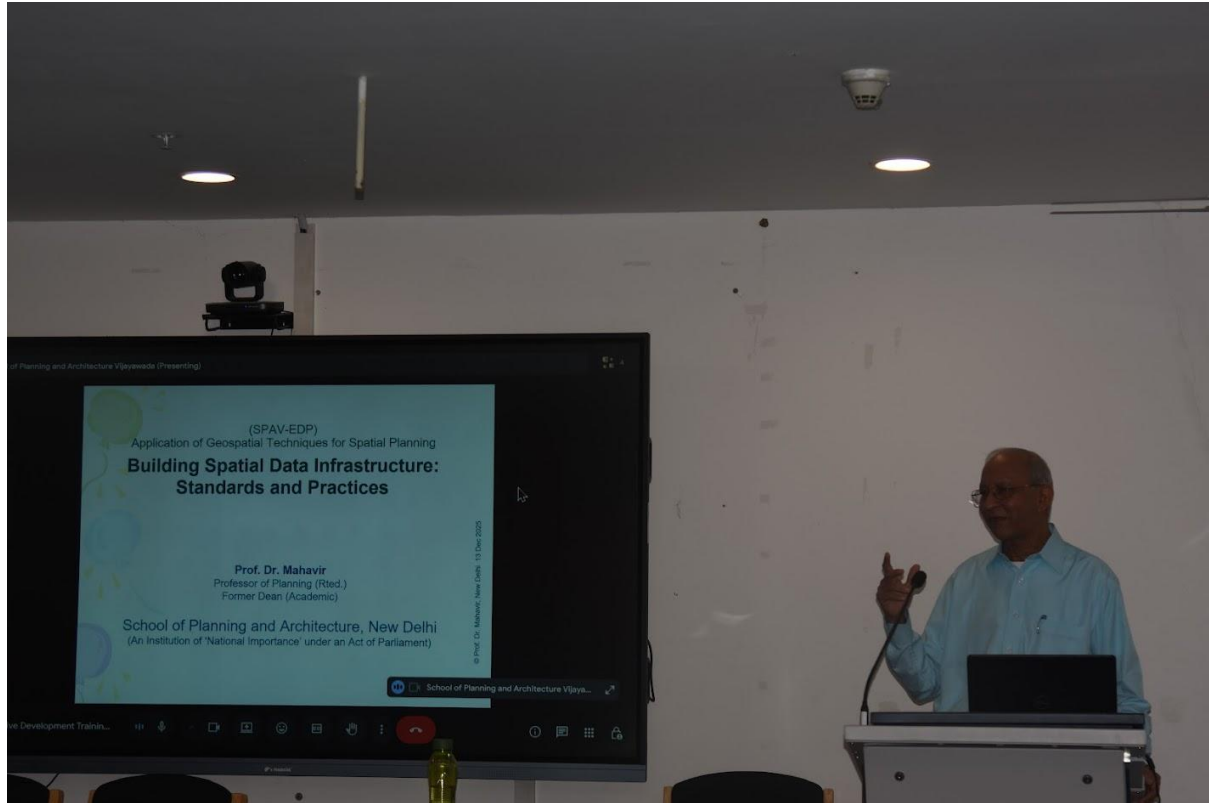


Figure 13: Session by Dr. Mahavir on Day 3

The session on “Building Spatial Data Infrastructure (SDI)” focused on the importance of organized, standardized, and interoperable geospatial data systems for effective planning and governance. The session explained the key components of SDI, including data standards, metadata, data sharing mechanisms, policies, and institutional frameworks. Emphasis was placed on the role of SDI in improving data accessibility, reducing duplication, and enabling seamless integration of spatial datasets across agencies. The session highlighted how a robust SDI supports informed decision-making, collaborative planning, and efficient management of urban and regional development initiatives.

In addition, the session discussed best practices and national-level initiatives related to geospatial data management, underscoring the relevance of SDI in urban planning, infrastructure development, and smart city initiatives. Participants gained insights into the challenges of data coordination and governance, as well as the need for capacity building to effectively implement SDI frameworks. The session reinforced the significance of SDI in promoting transparency, data-driven planning, and sustainable spatial development.

Session 3: Geospatial Techniques for Thematic assessments in Urban and Regional Planning

Expert name: Mr. Sandeep Peeke, Mr. Ajay Sarath and Ms. Swathikka



Figure 14: Session by Mr. Sandeep Peeke on Day 3

The session on “Geospatial Techniques for Thematic Assessments in Urban and Regional Planning” provided participants with a comprehensive understanding of how GIS and remote sensing are used to generate, analyze, and interpret thematic maps for planning and decision-making.

The session explained the concept of thematic mapping and its importance in representing specific spatial characteristics such as land use, population distribution, infrastructure, environment, and socio-economic conditions. Participants were introduced to the workflow of thematic map preparation, including data collection, classification, spatial analysis, and visualization.

Various types of thematic maps commonly used in urban and regional planning were discussed in detail. These included land use and land cover maps for monitoring urban growth and land transformation; transportation and infrastructure maps depicting road networks, public facilities, and utilities; population and demographic maps showing density, growth patterns, and socio-economic indicators; environmental thematic maps such as green cover, water bodies, drainage, flood-prone zones, and pollution levels; and planning and suitability maps used for site selection, zoning, and development control. The session highlighted how thematic assessments support evidence-based planning, policy formulation, and sustainable urban and regional development by enabling planners to visualize spatial patterns, identify issues, and evaluate planning scenarios effectively.



Figure 15: Session by Mr. Ajay Sarath on Day 3

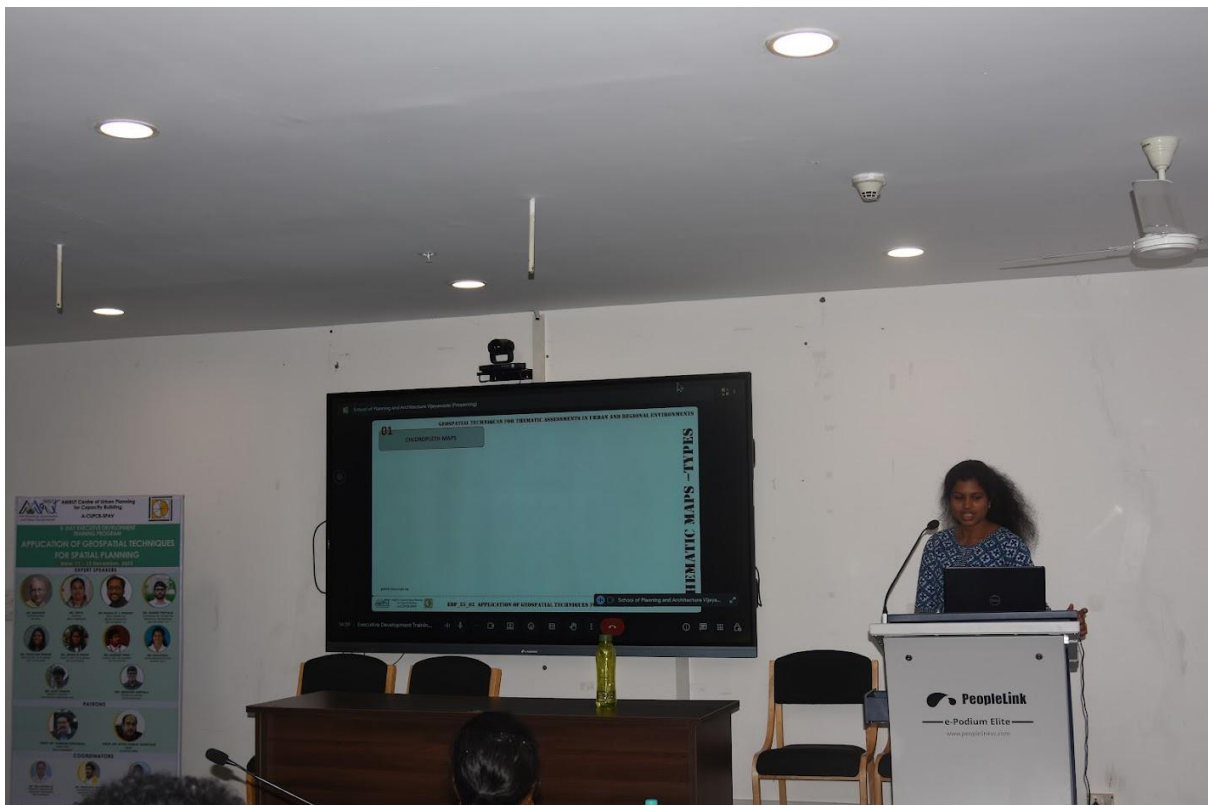


Figure 16: Session by Ms. Swathikka S on Day 3

Hands-on Session

The hands-on session on Land Use and Land Cover (LULC) mapping using supervised classification and thematic map preparation provided participants with practical training in deriving meaningful planning information from satellite imagery. Participants were guided through the process of selecting training samples, applying supervised classification techniques, and generating LULC classes based on spectral characteristics. The session emphasized accuracy assessment, class refinement, and interpretation of results to ensure reliable outputs. Participants also learned to create clear and standardized thematic maps from the classified data, enhancing their understanding of how LULC analysis supports urban growth assessment, environmental monitoring, and informed spatial planning decisions.

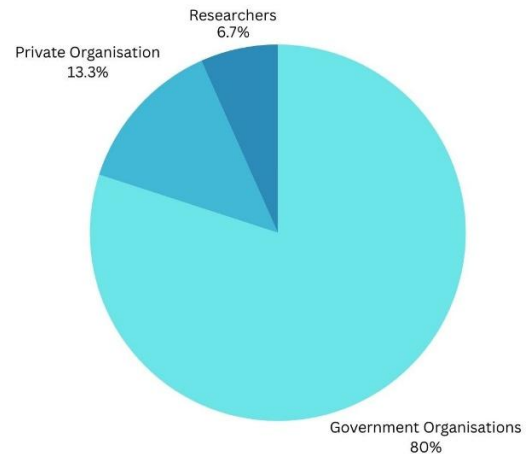
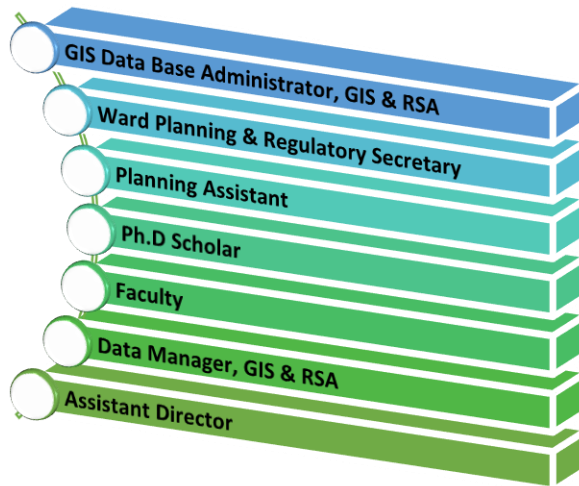


Figure 17: Hands on Session by Ms. Swathikka S, Ajay Sarath and Valliappan AL on Day 3

Participants Profile

Sl.No	Participant Name	Designation	Present Employer Organisation Details	City, District, State
1	Sekhar Saigam	Planning Assistant	Andhra Pradesh Capital Region Development Authority	Hyderabad, Ranga Reddy, Telangana.
2	Sandeep Kalthi	Ward Planning & Regulatory Secretary	Greater Visakhapatnam Municipal Corporation	Visakhapatnam
3	Gogineni Annapurna	Data Manager, GIS & RSA	Andhra Pradesh Capital Region Development Authority, Project Office, Amaravati, Andhra Pradesh	Vijayawada, NTR District, Andhra Pradesh
4	Dr T Preethi Latha	GIS Data Base Administrator, GIS & RSA	Andhra Pradesh Capital Region Development Authority (APCRDA),	Guntur, Guntur District, Andhra Pradesh
5	Dr.Siva Rama Krishna Uppuluri	Faculty	Dhanekula Institute Of Engineering And Technology Vijayawada	VIJAYAWADA
6	Kannam Sri Lakshmi Gayatri	Ph.D Scholar	School Of Planning And Architecture, Vijayawada	Hyderabad - Telangana
7	SHAIK RIYAZ YESDANI	Ward Planning & Regulatory Secretary	Ongole Municipal Corporation, Governor Road, Ongole, Prakasam, Andhra Pradesh	Ongole, Prakasam District, Andhra Pradesh
8	Pushpa Priyanka Kolli	Assistant Director	Directorate Of Town And Country Planning Andhra Pradesh	Mangalagiri, Guntur District Andhra Pradesh
9	Gera Chaitanya	Ward Planning & Regulatory Secretary	Directorate Of Town And Country Planning Andhra Pradesh	Guntur, Guntur, Andhra Pradesh
10	M. S. Anantha Venkatesh	Ward Planning & Regulatory Secretary	Kurnool Municipal Corporation,	Kurnool

11	Vijay Kumar Kambhampati	Ward Planning & Regulatory Secretary	Town And Country Planning MA&UD Department	Sitharampuram Village, Nuzvid Mandal, Eluru District
12	Dantha Madhu Raj	Ward Planning & Regulatory Secretary	Nellore Municipal Corporation, Ambedkar Nagar, Dargamitta, Nellore	Nellore, SPSR Nellore District, Andhra Pradesh
13	Bhavya Banala	Ward Planning & Regulatory Secretary	Planning Secretary	Vijayawada
14	Shaik Mahammad	Ward Planning & Regulatory Secretary	Tirupati Municipal Corporation, Alipiri Road, Tirupati	Tirupati, Tirupati District, Andhra Pradesh.
15	Vigneswaran A	Ph.D. Scholar, SPAV	La Manjal Design Studio, Pondicherry	Pondicherry, Pondicherry



Participants Response

The participant feedback was collected through Google Forms, which was circulated via email by A-CUPCB-SPAV. A summary of the feedback received from the participants is presented below.

The training program received highly positive feedback from participants across various regions, emphasizing its effectiveness in knowledge dissemination and practical application. Most participants rated the curriculum as "Well-Designed" or "Very Well-Designed", indicating that the content was comprehensive and structured to fit the training duration.

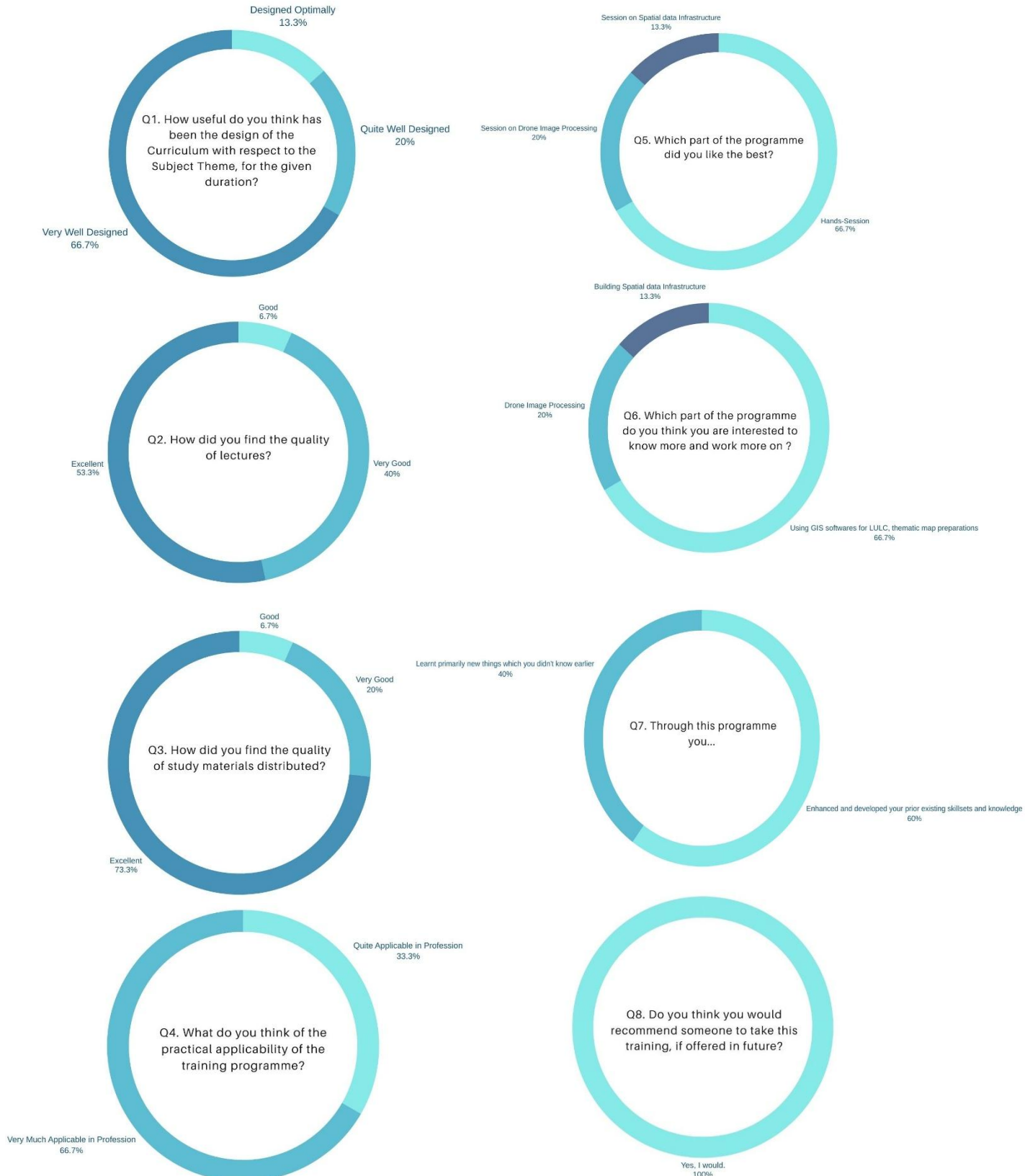
The quality of lectures was highly appreciated, with the majority rating them "Very Good" or "Excellent", reflecting the clarity, depth, and expertise of the speakers. The training materials were also highly valued, with responses ranging from "Very Good" to "Excellent". Many participants found the program directly applicable to their professional fields, especially in areas related to Base Map preparation using AMRUT guidelines.

Participants particularly appreciated the Live demonstration and Hand on sessions and interactive discussions, which provided real-world insights into urban and regional planning, Geospatial planning. Many expressed interests in further exploring advanced topics such as Transport Planning using Geospatial techniques.

The majority of attendees reported having gained new insights and practical knowledge, demonstrating the program's success in capacity building and skill enhancement. Almost all participants expressed willingness to recommend the training to their peers, highlighting the program's relevance and impact. Some participants suggested points for hands-on exercises and extended discussions on specific sessions for an even more immersive learning experience.

Overall, the training was well-received, offering a balanced blend of theoretical knowledge and practical applications. Participants found it valuable for their professional growth and expressed eagerness for more advanced training sessions in the future.

Participants Feedback





Extending the duration of the training to a 5–7-day programme would allow for enhancing skill development and professional competency in geospatial applications.

— G Chaitanya, APCRA

“The Executive Development Programme provided valuable insights into the application of geospatial techniques for transportation planning”

— Dr. T Preethi Latha, APCRDA



The hands-on exposure to GIS-based tools greatly strengthened the understanding of data-driven approaches and their practical relevance in planning applications. Additional hands-on sessions would further enrich the learning experience

— Dr. Siva Rama Krishna Uppuluri, Faculty, Dhaneakula Institute of Engineering and Tecnology

Valedictory Session

The valedictory session marked the successful conclusion of the three-day Executive Development Program (EDP) and was initiated by Dr. Valliappan AL (Principal Instructor). The session was chaired by Prof. Dr. Ramesh Srikonda (Director, SPA Vijayawada), Prof. Dr. Ayon K. Tarafdar (Head, CUPCB), and Dr. Mahavir (Expert).

The session commenced with a brief address by Prof. Dr. Ramesh Srikonda, emphasizing the key takeaways from the program and the importance of continued efforts in Application of Geospatial techniques for Spatial Planning. Prof. Dr. Ayon K. Tarafdar also shared his insights on the program's impact and future scope. Following this, all experts who contributed to the training sessions were felicitated by the Director with mementos in recognition of their valuable contributions.

Participants were also honoured with certificates and mementos for their active engagement in the program. The session concluded with closing remarks by Dr. Valliappan AL (Principal Instructor), highlighting the significance of knowledge dissemination and collaborative action Spatial Planning.



Figure 18: Valedictory Session Chaired by Prof. Dr. Ayon K. Tarafdar (Head, CUPCB), and Dr. Mahavir and Prof. Dr. Ramesh Srikonda (Director, SPA Vijayawada)



Figure 19: Memento distribution by the Director, SPAV to the Experts



Figure 20: Certificate and memento distribution to the Participants



Figure 21: Group Photo of the Training Batch with Director, Head ACUPCB, Experts and Participants

Brochure

Day 01

Fundamentals of Remote Sensing and GIS: Concepts, Principles, and Applications

- Satellite based Remote Sensing – Image Procurement and Resolutions
- Drone-Based Remote Sensing: Urban Management Applications
- Hands-On training: Drone - Based Remote Sensing exercises

Day 02

- GIS Data Characteristics: Understanding Structure, Accuracy, and Usability
- Base Map Preparation in Compliance with AMRUT Guidelines
- Hands-On training: Base Map Preparation

Day 03

- Introduction to Spatial Statistics
- Building Spatial Data Infrastructure: Standards and Practices
- Geospatial Techniques for Thematic assessments in Urban and Regional Planning
- Hands-On training

Target Audience

The training session is designed for Planners, Government officials, Policy-makers, Researchers, Students, and Industry professionals engaged in urban development, infrastructure, environment, and resource management, highlighting the role of geospatial tools in Spatial Planning

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Application of Geospatial Techniques for Spatial Planning

11th-13th Dec 2025



3 Days

8 Modules

Hands-on Exercises

24 Contact Hrs/ 1.5 Credit Equivalent

Registration Details:
For Registration, Fee and Detailed programme, visit:
https://acupcb.spav.ac.in/capacity-building/edp_25_02/

Accommodation will be provided on request basis



Deliverables and Outcomes

Training modules, hands-on GIS/remote sensing exercises, case studies, datasets for practice, and learning materials.

Enhanced skills in geospatial analysis, ability to apply GIS tools for spatial planning, improved decision-making capacity, and readiness to integrate geospatial techniques in real-world projects.

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An Institute of National Importance, Ministry of Education, Govt. of India

Coordinated by

Asst. Prof. Dr. Valliappan A L
(Principal Instructor)

Assoc. Prof. Dr. Prasanth Vardhan P
(Principal Co-Instructor)

Jaldi Anitha
(Co-Instructor)

Patrons

Prof. Dr. Ramesh Srikonda
(Director, SPA Vijayawada)

Prof. Dr. Ayon Kumar Tarafdar
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Purpose of the Program

The purpose of the program is to equip participants with knowledge and practical skills in applying geospatial techniques for effective spatial planning. It aims to demonstrate how tools like GIS, remote sensing, and spatial analysis can support evidence-based decision-making in urban development, land-use management, infrastructure planning, and environmental sustainability.

Poster



अमृत
Atal Mission for Rejuvenation
and Urban Transformation

AMRUT Centre of Urban Planning
for Capacity Building
A-CUPCB-SPAV



Executive Development Program

Target Audience

- Urban Planners
- Architects
- Engineers
- DTP & Municipal Planners
- Municipal Engineers
- Development officers
- Academicians
- Researchers
- Students

3 Days | 9 Sessions

24 Contact Hrs | 1.5 Credit Equivalent

11TH - 13TH DECEMBER 2025



APPLICATION OF GEOSPATIAL TECHNIQUES FOR SPATIAL PLANNING

About the Program

This 3-day training program enhances participants' skills in Remote Sensing and GIS for urban planning, with a focus on AMRUT guidelines. It covers fundamentals of GIS, spatial data infrastructure, satellite and drone data applications, base map preparation, and online publishing of geospatial data. Participants will also gain hands-on exposure to advanced techniques like land use mapping and thermal assessment of urban environments.

DEC 11 2025

- Fundamentals of Remote Sensing and GIS
- Satellite based Remote Sensing – Image Procurement and Resolutions
- Drone-Based Remote Sensing: Urban Management Applications

DEC 12 2025

- GIS Data Characteristics: Understanding Structure, Accuracy, and Usability
- Base Map Preparation in Compliance with AMRUT Guidelines
- Integration Techniques: Layout Plans and Revenue Maps with Base Maps

DEC 13 2025

- Building Spatial Data Infrastructure: Practices and Standards
- Editing & Publishing Geospatial Data Online
- Geospatial Techniques for Thematic assessments in Urban Environments

Coordinated by

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Ass. Prof, Dept of Planning

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For Registration, Fees, etc Scan/Visit:
https://acupcb.spav.ac.in/capacity-building/edp_25_02/
Further details, contact email: jaldianitha@spav.ac.in



Training Manual

Executive Development Program APPLICATION OF GEOSPATIAL TECHNIQUES FOR SPATIAL PLANNING

11th - 13th Dec 2025

Reading Material Compendium



AMRUT Centre of Urban Planning
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Contents

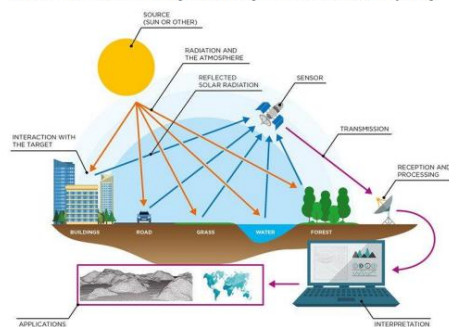
Preface	ii
Message from Director, SPAV	iii
Message from Head, A-CUPCB-SPAV	iv
List of Trainers and Experts	v
Programme Overview	vii
Schedule of Sessions	viii
READING MATERIAL	1
1. Fundamentals of Remote Sensing and GIS: Concepts, Principles, and Applications	3
2. Satellite based Remote Sensing – Image Procurement and Resolutions	16
3. Drone-Based Remote Sensing: Urban Management Applications	21
4. GIS Data Characteristics: Understanding Structure, Accuracy, and Usability	27
5. Base Map Preparation in Compliance with AMRUT Guidelines	30
6. Introduction to Spatial Statistics	34
7. Building Spatial Data Infrastructure: Standards and Practices	43
8. Geospatial Techniques for Thematic assessments in Urban and Regional Planning – Session 1	47
9. Geospatial Techniques for Thematic assessments in Urban and Regional Planning – Session 2	61
HANDS-ON TRAINING MATERIAL	70
Drone Data Processing – Step-by-Step Procedure	71
Extracting Information From Orthomosaic Created Using Drone Dataset	75
Base Map Preparation	84
Thematic Mapping Session – 1	93
Thematic Mapping Session – 2	105

v1 | EDP_25_02 Application of Geospatial Techniques for Spatial Planning 11th-13th Dec, 25



observation, remote sensing involves collecting data about the Earth's surface, oceans, and atmosphere using sensors mounted on airborne platforms (such as aircraft and balloons) or space-borne platforms (such as satellites and space shuttles).

Remote sensing systems detect and measure electromagnetic radiation that is reflected or emitted by objects on the Earth's surface. By analysing variations in this radiation across different wavelengths, it becomes possible to identify, classify, and evaluate natural and man-made features. Remote sensing plays a crucial role in studying inaccessible or large areas, enabling efficient data collection for environmental monitoring, resource management, disaster assessment, and planning.



Geographic Information System (GIS)

A Geographic Information System (GIS) is a computer-based system designed to capture, store, manage, analyse, and visualize spatially referenced data. GIS integrates spatial data (location-based information) with attribute data (descriptive information), allowing users to identify patterns, relationships, and trends within a geographic context.

GIS enables the creation of maps, spatial models, and analytical outputs that support decision-making in fields such as urban planning, agriculture, environmental management, transportation, and public health. While remote sensing provides up-to-date spatial data, GIS serves as the platform for organizing, analysing, and interpreting this information effectively.

Together, remote sensing and GIS form complementary technologies: remote sensing acts as a data acquisition tool, while GIS functions as an analytical and decision-support framework.

EDP_25_02 Application of Geospatial Techniques for Spatial Planning 11th-13th Dec, 25 | 5



Thematic Mapping Session – 2

Landuse and Land Cover

Remote Sensing

Remote sensing is a technique used to gather information about the Earth from a distance by employing sensors mounted on satellites or aircraft. These sensors capture data that help in monitoring and understanding the Earth's surface and atmosphere without direct physical contact. Remote sensing works hand-in-hand with Geographic Information Systems (GIS), which serve as platforms for analysing, storing, and visualizing the collected spatial data. Together, they provide powerful tools for spatial assessment and decision-making in various planning and environmental applications.

Applications of Remote Sensing

Remote sensing is a powerful tool for Land Use and Land Cover (LULC) mapping, enabling detection of changes such as urban expansion, vegetation reduction, and agricultural shifts. It supports urban growth and sprawl analysis and is widely used for Urban Heat Island (UHI) studies through land surface temperature assessment. Remote sensing also aids transportation and infrastructure planning by monitoring networks and evaluating connectivity. In environmental planning, it helps map water bodies, drainage systems, and flood-prone zones, strengthening disaster risk assessment. It is valuable for green cover analysis using vegetation indices like NDVI and for monitoring open spaces and canopy health. Additionally, remote sensing supports site suitability assessments, ensuring informed decision-making for sustainable urban development.

Land Use / Land Cover Mapping (LULC)

Land Cover refers to the physical features on the Earth's surface—such as vegetation, water, built-up areas, and bare soil—making its mapping vital for environmental monitoring and resource management. Land Use describes how humans utilize that land for activities like agriculture, housing, industry, or recreation. Although closely related, they represent different aspects: one shows what exists physically, while the other indicates how it is used. Combined LULC mapping therefore provides a clearer understanding of both landscape characteristics and human interventions, supporting sustainable planning, conservation, and informed policy decisions.

Methods of LULC Mapping

LULC mapping is widely performed using remote sensing techniques, where classification plays a major role. Classification is the process of categorizing pixels in satellite imagery into meaningful land cover classes. There are two major classification approaches:

1. Supervised Classification

Supervised classification is a guided technique where the user supplies training samples representing known land cover types. These samples contain distinctive spectral characteristics that help the algorithm learn and classify the entire image accordingly. Common supervised methods include Minimum Distance, Mahalanobis Distance, and the widely used Maximum Likelihood

EDP_25_02 Application of Geospatial Techniques for Spatial Planning 11th-13th Dec, 25 | 105

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