

Date: 28-03-2026

Academic Year: 2025-2026

Activity: One Day “Industrial Visit”- National Remote Sensing Centre (NRSC), Hyderabad

Consolidated Report

The Department of Computer Science and Engineering of Nalla Narasimha Reddy Education Society's Group of Institutions organized a one-day industrial visit to the National Remote Sensing Centre (NRSC), Jeedimetla, Hyderabad, as part of academic enrichment activities to provide students with practical exposure to space technology, remote sensing systems, and geospatial data processing.

A total of 190 II-year CSE students from the Department of Computer Science and Engineering, along with faculty members, participated in this industrial visit. The visit was organized to enhance students understanding of real-time applications of Computer Science concepts such as data analytics, Artificial Intelligence, Machine Learning, image processing, cloud computing, and Geographic Information Systems (GIS) in space research.

The visit provided an excellent opportunity to observe ISRO technologies, understand satellite data processing mechanisms and emerging developments in space technology.



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(Approved by AICTE & PCI, New Delhi & Affiliated to JNTUH, Accredited by NAAC with A+ Grade)
Chowdariguda (V), Korremula 'X' Road, Ghatkesar (M), Medchal-Malkajgiri (D), Hyderabad - 500088, Telangana.

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to

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Jeedimetla, Hyderabad

on

25-03-2026

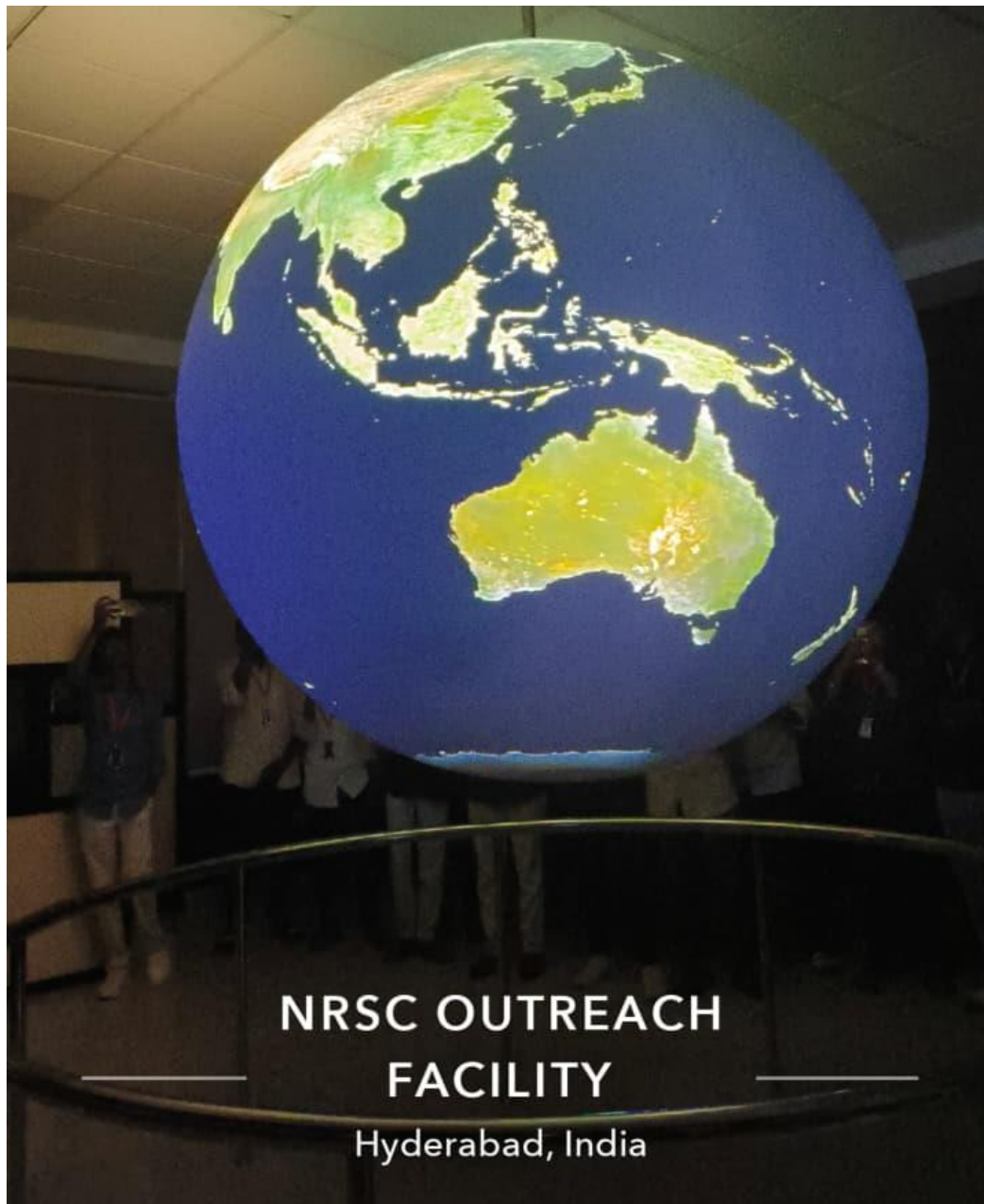


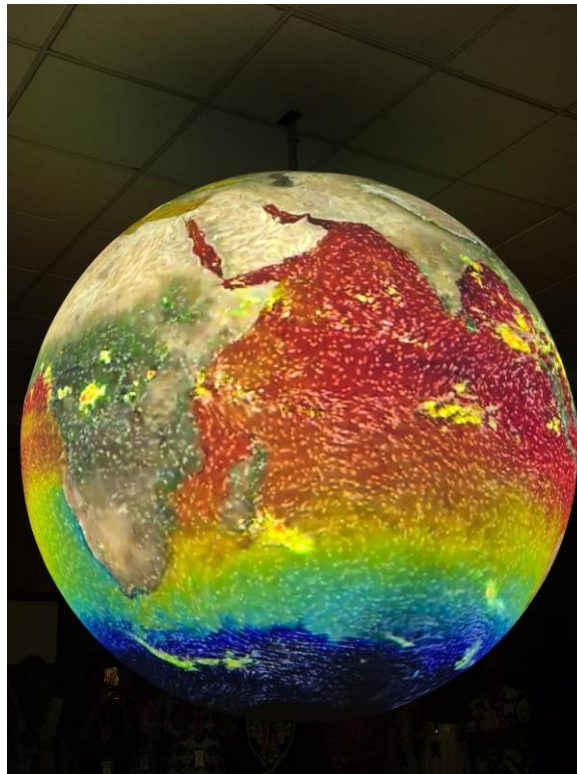


Objectives:

The main objectives of the industrial visit were:

- To understand the functioning and research activities of NRSC.
- To gain knowledge about satellite data acquisition and remote sensing technologies.
- To understand the applications of GIS and geospatial technologies.
- To bridge the gap between academic learning and industrial practices.
- To expose students to emerging technologies in space research.
- To create awareness about career opportunities in space technology, AI, and data science





Activities During the Visit:

During the industrial visit, students were given comprehensive exposure to various technical divisions and operational systems of the National Remote Sensing Centre (NRSC). The visit included technical presentations, infrastructure demonstrations, practical visualization sessions, and interactions with scientists. Students were able to understand the complete workflow of satellite data acquisition, processing, and its applications in solving real-world problems. The major activities carried out during the visit include:



1. Orientation Programme:

The visit started with an orientation session conducted by NRSC officials explaining the structure of ISRO and the role of NRSC in satellite data reception, processing, archiving, and dissemination. Students were introduced to the importance of remote sensing technologies in national development.

Key points covered:

- Introduction to ISRO and NRSC
- Role of NRSC in Earth observation programs
- Importance of geospatial technologies
- Applications of remote sensing in various sectors



2. ISRO Infrastructure Visit:

Students visited the exhibition area where they observed models of ISRO launch vehicles and satellite systems. This helped them understand the evolution of India's space technology.

Major observations:

- PSLV, GSLV and LVM3 launch vehicle models
- Chandrayaan-3 landing site model
- Satellite payload models
- Information displays on ISRO missions

3. Satellite Data Acquisition Systems:

Students were explained how satellites communicate with ground stations and how raw data is processed into usable information.

Students learned about:

- Satellite tracking mechanisms
- Antenna systems
- Data reception procedures
- Ground station operations
- IRS satellite missions



4. Remote Sensing Technologies:

Students were introduced to the fundamentals of remote sensing technologies and sensor systems used in satellite imaging.

Topics explained:

- Active and passive sensors
- Multispectral imaging
- Hyperspectral imaging
- Image processing techniques
- Data interpretation methods



5. Launch Vehicle Engineering:

NRSC experts explained the structure and working of launch vehicles and propulsion systems used in ISRO missions.

Concepts discussed:

- Multi-stage rocket design
- Solid and liquid propulsion
- Cryogenic engines
- Launch vehicle assembly stages



6. Navigation and Space Communication:

Students learned about navigation systems and deep space communication technologies used by ISRO.

Areas covered:

- NavIC navigation system
- Indian Deep Space Network
- Chandrayaan communication systems
- Satellite telemetry and tracking



7. Applications of Satellite Data:

Students were introduced to various applications of satellite data and geospatial platforms developed by NRSC.

Applications explained:

- Bhuvan Geoportal
- Bhoonidhi data portal
- Agriculture monitoring
- Disaster management
- Environmental monitoring
- Urban planning applications



8. Emerging Technologies:

Students were introduced to upcoming ISRO missions and advanced technologies being developed.

Future technologies discussed:

- Gaganyaan mission
- Reusable Launch Vehicle
- Space robotics
- Space docking experiments
- Future planetary missions



9. Practical Demonstrations:

Students observed practical demonstrations of satellite image visualization and GIS systems which helped them understand real-time applications.

Demonstrations included:

- Satellite image visualization
- GIS mapping systems
- Navigation systems
- Solar system dome presentation

10. Interactive Session:

An interactive session was conducted at the end of the visit where students actively interacted with NRSC scientists and technical experts. During this session, students clarified their doubts regarding satellite technologies, remote sensing applications, and the role of Computer Science in space research. The experts also provided valuable guidance on career opportunities in ISRO, higher education pathways, and the technical skills required to work in the domains of space technology, data science, and geospatial analytics. The session was highly informative and helped students understand the importance of strong fundamentals in programming, data analysis, and emerging technologies such as Artificial Intelligence and Machine Learning. This interaction also motivated students to explore research opportunities and careers in advanced technological fields.



Outcome:

The industrial visit provided valuable exposure to advanced remote sensing technologies and satellite data processing systems. Students gained practical understanding of how Computer Science concepts are applied in space research and geospatial data analysis.

The visit helped students understand industry expectations and motivated them to pursue careers in emerging fields such as Artificial Intelligence, Data Science, and Space Technology.

Conclusion:

The industrial visit to NRSC, Hyderabad, was a highly informative and enriching experience for the students of the Department of Computer Science and Engineering. The visit strengthened the technical knowledge of students and provided valuable industry exposure.

The Department of Computer Science and Engineering expresses sincere gratitude to NRSC officials for their support and guidance in making this visit successful. Such industrial visits play a significant role in enhancing students practical knowledge and preparing them for future technological advancements.





Group photo of students and faculty members with NRSC Team

FACULTY COORDINATOR

HEAD-CSE