

A Report on Industrial Visit to
"National Atmospheric Research Laboratory (NARL), Gadanki, Tirupati"
Organized by Department of Computer Science & Technology
on 09.10.2026



Report Submitted by: Mr. D. Suresh, Assistant Professor, Department of CST; Mr. D. Ashok, Assistant Professor, Department of CST.

Participants: (60 students- III Year, Sections A, B, C)

Mode of Conduct: Offline

Report Received on 12.10.2026

Objectives of the Visit:

The main objectives of the visit were:

- To understand atmospheric and ionospheric research and space weather phenomena.
- To study the working principles of the Active Array MST Radar.
- To explore applications of digital signal processing, data analytics, and communication technologies.
- To gain practical exposure to scientific instruments and research infrastructure.
- To understand the importance of innovation and sustainable infrastructure in scientific research.



Activities at NARL:

Attended presentations by NARL scientists on Planetary Atmosphere and Ionosphere Research, the Network for Atmospheric and Space Weather Research, and Camp Observatories.

Learned about the Active Array MST Radar, its 53 MHz operating frequency, and its role in measuring atmospheric wind patterns.

Observed radio telescope arrays, solar observation facilities, weather towers, and communication structures.

Gained knowledge of digital beamforming, radar signal processing, and high-resolution data acquisition.

Interacted with scientists and instructors to understand practical applications of atmospheric research and scientific instrumentation.



Observations & Learning Outcomes:

- Understood the working principles and applications of advanced radar systems in atmospheric research.
- Gained exposure to digital signal processing, data acquisition, and data analytics techniques.
- Learned how atmospheric and space weather conditions influence communication and navigation systems.
- Understood the integration of computing, electronics, and communication technologies in scientific research.
- Recognized the importance of innovation and sustainable research infrastructure in achieving **Sustainable Development Goal 9 (SDG 9)**.
- Developed research-oriented thinking and an appreciation for practical scientific experiments.

Photographic Evidence:

The photographs taken during the visit document the major activities and learning experiences, including:

- Group photograph at the NARL entrance gate.
- Students interacting with scientific posters.
- Outdoor observation of radio telescope arrays.
- Classroom sessions on radar technology.
- Field discussions with NARL scientists and instructors.

These photographs serve as visual evidence of student participation and practical exposure to scientific research facilities



Conclusion:

The industrial visit to NARL was a valuable educational experience that connected classroom learning with practical scientific applications. Students gained insights into atmospheric research, radar technology, signal processing, data analytics, and communication systems. The visit enhanced their technical understanding, encouraged research-oriented thinking, and highlighted the importance of innovation in modern science and technology. Overall, it was a successful academic initiative that contributed to students' technical knowledge and professional development.

