A Report on Industrial Visit to "National Atmospheric Research Laboratory (NARL), Gadanki, Tirupati" Organized by Department of Computer Science & Technology on 14.08.2026

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Participants: (65 students- III Year, Sections A, B, C)
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Mode of Conduct: Offline

Objectives of the Visit

- To gain insights into atmospheric and ionospheric research.
- To understand the functioning of radar systems such as the Active Array MST Radar.
- To observe real-world applications of data analytics, signal processing, and communication systems.
- To connect theoretical knowledge with practical scientific experiments.

Activities at NARL

During the visit, students engaged in:

- Presentations on topics like *Planetary Atmosphere Ionosphere Research*, *Network for Atmospheric and Space Weather Research*, and *Camp Observatories by the scientists in NARL*.

- Field exposure to large-scale installations such as radio telescope arrays and solar observation facilities.


- Classroom sessions explaining the Active Array MST Radar, its 53 MHz operation, and its role in measuring wind patterns in the troposphere, stratosphere, and mesosphere.
- Outdoor learning near weather towers and communication structures, guided by NARL scientists.


Observations & Learning Outcomes

- Students observed digital beamforming techniques and high-resolution data acquisition in radar systems.
- They understood how space weather research impacts communication and navigation systems.
- The visit highlighted the importance of sustainable infrastructure (SDG 9) and innovation in atmospheric sciences.
- Students gained exposure to real-time data centers and scientific instrumentation.

Photographic Evidence

The attached photos document key moments:

- Group photo at NARL entrance gate.
- Students interacting with scientific posters.
- Outdoor exposure to radio telescope arrays.
- Classroom learning sessions on radar technology.
- Field discussions with instructors and scientists.

Conclusion

The industrial visit to NARL was a successful academic initiative, bridging classroom learning with real-world research. Students gained valuable insights into atmospheric sciences, radar technology, and data analytics applications. The visit strengthened their understanding of technical paper writing, research methodologies, and innovation in computing and communication systems.