

School of Engineering
Department of Electronics and Communication Engineering

Date: 12th September, 2025

A Report on Industrial Visit
to
India Meteorological Department (IMD) – Begumpet, Hyderabad

Program Particulars:

Date Organized	Venue/Organization	Attendees
11 th September 2025 (Thursday)	Indian Meteorological Department (IMD), Begumpet, Hyderabad	B. Tech. ECE II yr I sem. Section A (62 Students) and 2 faculty members



NALLA NARASIMHA REDDY
Education Society's Group of Institutions - Integrated Campus
(Approved by AICTE & PCI, New Delhi & Affiliated to JNTUH, Accredited by NAAC with A+ Grade)
Chowdariguda (V), Korremula 'X' Roads, Ghatkesar (M), Medchal-Malkajgiri Dist., Hyderabad, T.S. - 500 088.
(UGC AUTONOMOUS INSTITUTION)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
in association with IIC, IIIC & IETE- Students Forum
Organizes
INDUSTRIAL VISIT
to
Indian Meteorological Department (IMD)
Begumpet, Hyderabad
B.Tech. II - A
11th September, 2025

Accredited by
A+ NAAC
NBA
CSE
ECE

INSTITUTION'S INNOVATION COUNCIL
(Ministry of Education, Government of India)

IETE
INDIAN ELECTRICAL & ELECTRONIC ENGINEERS

ECE

Purpose of Visit:

The Department of Electronics & Communication (ECE) Engineering in association with Industry Institute Interaction Cell (IIIC), Institute of Electrical & Electronic Engineers (IETE) Student Forum (ISF) of Nalla Narasimha Reddy Education Society's Group of Institution, and e-SPARK had organized an 'Industrial Visit' to "INDIAN METEOROLOGICAL

DEPARTMENT(IMD)” located at Begumpet, Hyderabad for the Ilyear B.Tech. ECE students on 11thSeptember, 2025 accompanied by ECE faculty members **Dr S Rekha**, Associate Professor and **Mr. K Srinivas**, Assistant Professor.



A Group Photo taken before commencing from college

The IMD is the national organization for meteorology, weather forecasting, and seismology, operating under the Ministry of Earth Sciences, Government of India. The purpose of the visit was to understand the functioning of weather monitoring, forecasting techniques, and the technological infrastructure used in meteorological services.

Objectives of the Visit:

1. To understand the working principles of meteorological instruments and observation techniques.
2. To gain knowledge of weather forecasting methods using radar, satellite, and numerical models.
3. To explore the role of IMD in disaster management, aviation, agriculture, and public safety.

Sections Visited:

1. Radiosonde-Radiowind (RS/RW) Section:

The Radiosonde Section (Upper Air Observatory) of the Indian Meteorological Department is responsible for studying the atmosphere at higher levels, up to about 20–30 km above the ground. It uses radiosonde balloons—large hydrogen or helium-filled balloons that carry lightweight instruments. As the balloon rises, the radiosonde measures temperature, pressure, humidity, and wind speed/direction at different

heights. This data is transmitted back to the ground station by radio signals. Radiosonde observations are usually carried out twice a day at fixed times (0000 UTC and 1200 UTC) simultaneously across the globe to provide uniform upper-air data.



An Official explaining the Surface Observatory System

2. Radar and Communication Section:

This section demonstrated the working of Doppler Weather Radar installed at Hyderabad. The staff explained how radar detects rainfall intensity, thunderstorm activity, and cyclone tracking. The communication unit highlighted how weather warnings are disseminated rapidly through media, SMS alerts, and online platforms. The Doppler Weather Radar section uses the Doppler effect to detect both the presence and movement of weather systems.

Unlike normal radars, which only show where rainfall occurs, Doppler radars also reveal wind speed and direction within storms. This makes them highly useful in tracking cyclones, thunderstorms, heavy rainfall, hail, and squalls in real time. IMD has established a wide network of DWRs across coastal and inland cities such as Chennai, Kolkata, Mumbai, and Delhi. The information from these radars is crucial for issuing nowcasts (0–3 hours forecasts) and short-term warnings that help in disaster preparedness and response.



An expert handling Session on Doppler weather RADAR

3. Surface Observatory Section:

Here, students observed how meteorologists generate short-range and medium-range forecasts using numerical weather prediction (NWP) models and satellite data. The section also introduced earthquake monitoring and its integration with disaster alert systems. The weather forecasting section combines observational data from surface observatories, Doppler radars, satellites, and upper-air balloon observations. This data is processed through advanced numerical weather prediction models, which simulate the dynamics of the atmosphere.

Meteorologists then analyze the outputs to prepare forecasts of different time scales, ranging from immediate now-casts to long-range seasonal forecasts.



An expert from IMD explaining the Forecasting and Seismology section



A Group Photo taken at IMD with Officials

Outcomes of the Visit:

At the end of the visit, the students have learnt

1. Working principles of meteorological instruments and observation techniques.
2. The weather forecasting methods using radar, satellite, and numerical models.
3. The role of IMD in disaster management, aviation, agriculture, and public safety.

A individual feedback was taken from every student attended the visit, through a Google Form link and a consolidated feedback report was prepared to make the outcome of the industrial visit purposeful.

In-Charge

Koustubh Kulkarni
Assistant Professor

HoD-ECE

Dr. B.Ravi
Associate Professor