

**A Report on One day Industrial Visit to
"U R Rao Satellite Centre, ISRO, Bengaluru"
Organized by Department of CSE-Cyber Security
on 26.03.2025**



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Participants: II B. Tech CSE(CS) Students, MITS.

Total Participants: 48

Mode of Conduct: Offline

Report received on 27.03.2025.

One-day Industrial Visit to U R Rao Satellite Centre, ISRO, Bengaluru, was organized for the II Year B. Tech CSE (Cyber Security) students on 26th March 2025. The Industrial Visit started at 5.00 AM at MITS, by APSRTC bus and reached HAL Aerospace Museum by 9.30 am and followed by U R Rao Satellite Centre, ISRO at 11.00 am. The students along with faculty members visited the URSC facilities between 11.00 am to 1.30 PM.

About URSC:

U R Rao Satellite Centre (URSC) is the lead centre of the Indian Space Research Organisation (ISRO) responsible for design, development, assembly & integration of communication, navigation, remote sensing, scientific and small satellite missions. The specialised teams of scientists, engineers and technicians of URSC have built more than 90 complex & advanced satellites for various applications in areas of telecommunications, television broadcasting, VSAT services, tele-medicine, tele-education, navigation, weather forecasting, disaster warning, search and rescue operations, earth observations, natural resource management, scientific and space science etc.

With the objective of taking the benefits of space technology to the length & breadth of the society, URSC is actively involved in creating cost-effective space infrastructure for the country.

Evolution of URSC:

- The establishment of Thumba Equatorial Launching Station (TERLS) in 1963 and the Experimental Satellite Communication Earth Station (ESCES) in 1967 was the prodigious precursors to Space activities in the country.
- Activities relating to satellite technology started in the right earnest at Satellite Systems Division at Space Science & Technology Centre, Trivandrum in the late sixties.
- Later when a conscious decision emerged in 1972 to build the first Indian Satellite 'Aryabhata' the scene shifted to Bangalore with the formulation of the Indian Scientific Satellite Project (ISSP).
- The Indian Institute of Science campus initially housed the project activities until it moved to the industrial sheds at Peenya. It was here that a handful of engineers and technicians fresh from the Universities sowed the first seeds of satellite technology in the country.
- With practically no prior art existing within the country, and with sparse infrastructure put together from scratch, this young team developed the first Indian Satellite ARYABHATA in the make shift industrial sheds at Peenya, Bangalore.
- With the success of the ARYABHATA mission, the fledgling space activity soon developed into a full-fledged programme with national priorities. Thus was born the U R Rao Satellite Centre (URSC) in 1976. In 1984 the Centre moved to the present 32 acre campus at Old Airport Road, Vimanapura in Bangalore.
- To cater to the growing need of satellite for various applications, ISRO Satellite Integration & Testing Establishment (ISITE) was established in 2006 in a 110-acre campus which is about 8 km away from the present campus.

- ISITE has a large clean room and state-of-the-art electronics fabrication and test facilities under one roof for the assembly, integration and testing of communication satellites.



Functions of URSC:

- The primary function of URSC is design, development, integration and testing of different categories of satellites like, Communication, Earth observation, Navigation and Space Science Satellites.
- The centre is responsible for the total Spacecraft project management from Conceptualisation phase to In-orbit spacecraft operationalisation phase
- Pursue Research & developments in the area of advanced state-of-the-art satellite related technologies and also establish necessary infrastructure for satellite building activities.
- Actively involve Private, Public-sector Industries for realising satellite systems.
- Promote and encourage student community by providing opportunities for Universities, Colleges and Academia in Research & Developmental activities including Small Satellites.

Functions of Laboratory for Electro-Optics Systems (LEOS):

- Design, development, fabrication, assembly, testing and delivery of various electro-optic sensors for ISRO's LEO, GEO, Science & Interplanetary missions. These sensors include Sun sensors, Earth sensors, magnetometer, star sensors and processing electronic packages.
- The Centre is also focussing on advanced sensor technology development activities.
- Owing to the increased requirement, LEOS has initiated vendor development and successfully outsourced the fabrication, assembly & testing of Sun sensors, Scanning Earth Sensors and processing electronics.
- Necessary Infrastructure for sensor development, fabrication & testing are also established.

Outcomes of Industrial Visit:

- Students gained knowledge on real time Satellite development and its related researches.
- Students explored about Communication Satellites and its practical working functions.
- Students gained knowledge on real-time application areas of Python, Java, SQL database and analysed their importance in scientific area.
- Students understood the cyber security involvement in space research.

Glimpse of Visit:

