Gyanmanjari Innovative University, Bhavnagar

Department of Information Technology

Visit Report

18/09/2025

At

ISRO Space Applications Centre (SAC), Ahmedabad

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Content

ACKNOWLEDGEMENT

We are deeply indebted to the principal **Dr. H. M. Nimbark Sir,** without whose guidance and corporation tour would not been possible.

Our sincere gratitude to **Head of Department Prof. Dhaval R. Chandarana Sir** for giving us permission to go for such an Industrial visit.

We also express our sincere gratitude to **Prof. Samuel R. Patel and Prof. Nikita J. Parmar** who has taken a lot of efforts for getting success at each and every step and coming along with us.

We will like to thank **Prof. Japan M. Mavani** and our college for being supportive all the time and giving such a good opportunity to see and interact with the corporate world in college life itself.

INFORMATION

The **Space Applications Centre (SAC)**, located in Ahmedabad, is one of the premier research and development centers of the **Indian Space Research Organisation (ISRO)**. Established to harness space technology for national development, SAC is engaged in the design and development of payloads for communication, meteorology, remote sensing, and navigation satellites.

SAC's work spans diverse fields such as satellite communications, earth observation, microwave remote sensing, satellite navigation, and planetary exploration. The center also plays a crucial role in developing societal applications of space technology in areas like telemedicine, tele-education, disaster management, weather forecasting, agriculture, and natural resource management.

Equipped with advanced laboratories, research facilities, and highly skilled scientists and engineers, SAC continues to make significant contributions to India's space program. It serves as a hub where innovation, research, and technology come together to transform scientific ideas into real-world applications that benefit both the nation and humanity at large.

PURPOSE OF VISIT

Industrial visits are an essential part of academic learning as they provide students with practical exposure to the working environment of advanced organizations. The objectives of this visit included:

1. To gain practical knowledge of the functioning of a premier research organization.
2. To understand the development process of satellite payloads and space applications.
3. To learn about organizational management and coordination between different departments.
4. To observe the application of IT in high-end research projects.
5. To develop awareness about handling technical and operational challenges.

In line with these objectives, the **Information Technology Department** organized an industrial visit for **Diploma IT, Semester 3, Classes B & C** to the **ISRO Space Applications Centre (SAC), Ahmedabad**. The visit was aimed at giving students a firsthand experience of India's space research capabilities and the role of IT in supporting these technologies.

➢ Significance of the Industrial Tour

The primary purpose of such visits is to study the different aspects of an advanced research organization and understand the practical implementation of theoretical knowledge. Students were able to observe how various departments coordinate to achieve complex goals, how innovative methods are applied in payload and satellite development, and how information technology supports mission-critical operations.

This visit also provided a broad outlook on the applications of space technology in areas such as remote sensing, navigation, communication, and earth observation. Students could link their IT knowledge with real-world applications, gaining insights into software systems, data analytics, and satellite communication protocols used at SAC.

On **18th September 2025**, at 9:30 A.M., the students of **Diploma IT, Semester 3, Classes B & C**, accompanied by faculty members, departed for **ISRO SAC, Ahmedabad**. The campus is a state-of-the-art research facility with stringent security measures, modern laboratories, and dedicated exhibition halls showcasing India's space achievements. Permission for the visit was graciously provided by SAC administration, ensuring students a guided tour of the facility.

Upon arrival, students were welcomed with an introduction about the **Indian Space Research Organisation** and the role of **SAC** in India's space program. The tour started with a presentation on the life and contributions of **Dr. Vikram Sarabhai**, the visionary behind India's space program, highlighting how SAC has contributed to India's satellite development and societal applications of space technology.

Students were divided into groups for a structured tour. The IT Department students visited sections showcasing **satellite payloads, communication systems, and remote sensing instruments**. A key highlight was the **GSLV Mk III (Geosynchronous Satellite Launch Vehicle) model**, where students could explore its structure and learn about launch vehicle technology, payload integration, and mission planning. Informative panels explained ISRO's major missions and milestones.

A session with SAC scientists provided insights into **satellite navigation, communication, and geostationary satellites**, explaining how data is transmitted from space to earth and the role of IT in processing and analyzing this data. Students actively participated in discussions, asked questions, and attended a **live quiz** based on space technology concepts.

The visit also included interactive demonstrations on **satellite models like INSAT, GSAT, and CARTOSAT**, where students learned about solar panels, antennas, and propulsion systems. The tour emphasized the interdisciplinary collaboration required to manage space missions, linking IT skills with aerospace engineering.

Personal Experience of Students

The students of **Diploma IT, Semester 3, Classes B & C** expressed immense excitement and learning throughout the visit to **ISRO – SAC, Ahmedabad**. Many students shared that seeing the **satellite models, GSLV Mk III replica, and remote sensing instruments** in person gave them a much deeper understanding of concepts they had studied in class.

Several students highlighted how the **interactive sessions with SAC scientists** helped clarify complex topics such as satellite communication, geostationary orbits, and data transmission. They found the practical demonstrations especially valuable, as it allowed them to link theoretical knowledge with real-world applications, making the learning process more engaging and memorable.

Students also appreciated the **discipline and organization** of the visit. They enjoyed working in groups, participating in quizzes, and observing how different departments coordinate to achieve mission objectives. The visit encouraged teamwork, curiosity, and a spirit of inquiry, motivating them to explore further opportunities in the space and IT sectors.

Conclusion

The industrial visit to ISRO – Space Applications Centre (SAC), Ahmedabad proved to be a highly enriching and enlightening experience for the students of Diploma IT, Semester 3, Classes B & C. It provided an exceptional opportunity to observe the practical application of IT concepts in space research, satellite communication, and remote sensing, bridging the gap between classroom learning and real-world industry practices.

Students gained first-hand insights into the functioning of a premier research organization, learned about payload development, satellite systems, and geostationary operations, and witnessed the role of information technology in processing and analyzing satellite data. The interactive sessions with SAC scientists and exposure to advanced laboratories inspired students to think innovatively and consider future career paths in space technology and allied IT fields.

The Information Technology Department extends sincere gratitude to Prof. Samuel R. Patel and Prof. Nikita J. Parmar for their guidance during the visit. Special thanks are due to Prof. Japan M. Mavani, who expertly coordinated the entire visit, ensuring a smooth and highly informative experience for all students. Heartfelt acknowledgment is also given to Prof. Dhaval R. Chandarana, Head of the IT Department, for his continuous support in organizing this valuable educational experience.

In addition, the department conveys special appreciation to the **student coordinators** of the visit – **Harshrajsinh Gohil, Moradiya Vansh, Dharmi Parekh, Aayushi Solanki, and Dev Dodiya** – whose efforts and dedication played a vital role in managing the visit effectively and ensuring its success. Their contribution reflects the spirit of leadership and teamwork that the department continually strives to nurture among its students.

THANK YOU