



# **GOKULA KRISHNA COLLEGE OF ENGINEERING- SULLRPET**

(Affiliated to JNTUA Ananthapuramu and approved by AICTE, New Delhi)

## **DEPARTMENT OF ECE**

### **INDUSTRIAL VISIT REPORT**

**Date: 6-6-2022**

**CLASS: II, III B. Tech & II Diploma ECE**

**FACULTY MEMBERS:** 1. Mr. K. SUBRAMANYAM

2. Mrs. S.M. NIGAR

**INDUSTRY VISITED: SDSC-SHAR., Srihari Kota**

An Industrial visit at “Sathish Dhawan Space Centre- Srihari Kota Range (SDSC SHAR)” was done by II, III B. Tech & II Diploma ECE students on 2<sup>nd</sup> June 2022.



The industrial visit was started with 35 students accompanied by the faculty Mr. K. Subramanyam and Mrs. S.M. Nigar. All the students were very excited and left the campus at 10.00 am by our college bus. Around 10.30 AM we reached our destination SDSC-SHAR.

## THE INDUSTRY



Initially, several security checks were done for all the students and faculty then administrative formalities were completed. We were accompanied by a SHAR guide Mr.N Kumar.

### **Session 1: (Central library-10.45 am)**

We were taken to the “Brahma Prakash Hall” situated in the central library where they showed a video regarding the history of ISRO and facilities in SHAR.

### **Session 2: (Mission Control Centre (MCC)-11.00 am)**

We were taken to the “Mission Control Centre”, during this session, they showed another video regarding the vehicle launch and controlling of the launch vehicle during the launch time. The launch preparations on the vehicle are monitored from MCC using a multichannel closed-circuit television system. The important facilities at MCC include a machine control hall, launch control center, real-time network, VIP gallery, video conference, commentator rooms...etc.



### **Session 3: (Second Launching Pad -12.30 pm)**

During this session, we were taken to the second launching pad where generally the GSLV(Heavyweight) rockets are assembled and launched. Our guide explained various Radars used for protecting the rocket during lightning, rocket propellants used in different stages of the rocket, rocket lift sequences.... etc.



#### **Session 4: (First Launching Pad - 1.10 pm)**

During this session, we were taken to the first launching pad where generally the PSLV (low to moderate weight) rockets are assembled and launched. The first launching pad is used for weather forecasting satellites, educational satellites, agriculture-related satellites, commercial satellites, .... etc.

#### **Session 5: (Museum - 2.30 pm)**



After lunch, we were taken to the SHAR Museum where the history of ISRO, starting from the first Indian satellite Aryabhata to the recent Gaganyaan mission was displayed. The story of the Indian space program is comprised of 6 sections History, education, technology, applications, global, and the future. This visit has given us an insight into ISRO's exciting achievements and future plans.

#### **Conclusion:**

Overall, the training was very useful and it is like exposure to us about the practical working environment. We understood how our curriculums are used in companies. They also provide students a good opportunity to gain full awareness about industrial practices. With this industrial visit, we get awareness about new technologies.

### **Special Thanks**

We would like to thank our college management Sri G. Brahmaiah, Sri C. Srinivas Baba, and Sri. M.M. Kondaiah for being the source of inspiration to all the students. And also, we would like to thank our CEO Dr. Rapaka Vijayakrishna, Principal Dr. M Suresh, Vice Principal & Dean Mrs. M. Gnana Priya, HOD Dr. M. Chiranjeevi, and faculty Mr. K. Subramanyam, and Mrs. S.M. Nigar and all the ECE department staff for their wonderful guidance and support. We want to extend our thanks to the SHAR guide, Mr. N. Kumar, for taking care of the necessary arrangements for the visit.

Submitted by

**III B. Tech. ECE students**



**GOKULA KRISHNA COLLEGE OF ENGINEERING-SULLURPET**  
(Affiliated to JNTUA Ananthapuramu and approved by AICTE, New Delhi )  
**DEPARTMENT OF ECE**

**A REPORT ON ONE DAY INDUSTRIAL VISIT TO SDSC-SHAR**

**Date:10-01-2023**

An industrial visit to SDSC-SHAR (ISRO), Sriharikota has been organized by Department of Electronics and Communication Engineering of Gokula Krishna college of Engineering-Sullurpet, for 35 students of B.Tech II<sup>nd</sup> year on 10th January, 2023 who were accompanied by four faculty members , Mrs.S.M.Nigar, Asst. Prof., Mrs.E.Sasikala reddy, Asst. Prof., Mr.P.kasthuraiah, Asst. Prof. and Mrs.Abhinaya,Asst.Prof.,



**OBJECTIVE:**

The objective of the visit was to provide a Technical Exposure to the students about Space Technology and advancements in Technology. The visit not only provided a good insight into the quality of research happening in the area of space technology but also gave great exposure to the students about the future career prospects and areas of research in applied sciences.

**ABOUT ISRO AND SDSC SHAR:**

ISRO is the primary space agency of India and one of the largest space research organizations in the world. SATISH DHAWAN SPACE CENTRE (SDSC) or SRIHARI KOTA HIGH ALTITUDE RANGE (SHAR) is a rocket launch centre operated by Indian space research organization (ISRO). It is located in Sriharikota in Andhrapradesh. The Sriharikota range has been chosen for its proximity to the equator and to use the rotation of the earth . It is close to lake PULIKAT and it is about 100km north of Chennai and close to the BAY OF BENGAL.



## **SUMMARY OF THE VISIT:**

One bus with 35 students and four faculty members and one lab technician started from our main college campus at 9:30 A.M. on 10/01/2023 and reached there by 10.00. A.M.

After several security checks and administrative formalities, Students were taken to a central building.

### **Session 1: (Brahma Prakash Hall-10.35 am)**

We were taken to the “Brahma Prakash Hall” situated at Shar. In this place, they were shown a video – ‘Gateway to Space’ – on the ISRO, its history, and the current facilities available.



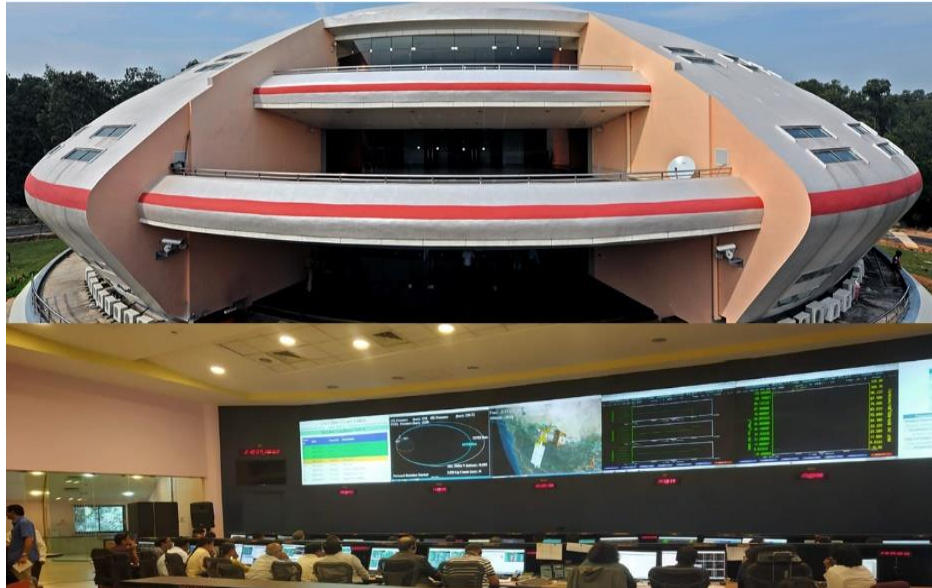
### **1.STEP WAY TO BRAHMA PRAKASH HALL**

After this, students were taken to several locations within the SDSC, with a guide to explain the locations.

### **Session 2: (MISSION CONTROL CENTRE (MCC)-11.30 am)**

We were taken to the “Mission Control Centre(MCC). The mission control is the focal point of controlling the vehicle. This MCC building is situated 6 Km away from the launch complex. From this building the launch operations can be monitored and conducts the launch operations pre-count and countdown phases until the satellite injected into the orbit. It is linked to all the ground stations through communication links for voice, video and data transmission. The launch preparations on the vehicle are monitored from MCC, using a multi channel Closed Circuit Television System (CCTV).

The important facilities at MCC include Mission Control Hall, Launch Control Centre, Real time Network, VIP Gallery, Video Conference, Mission Executives rooms, Commentator rooms, etc.



**2.MCC BUILDING**

**Session 3: (SECOND LAUNCH PAD -12.30 pm)**

During this session, we were taken to the second launching pad where generally the GSLV(Heavyweight) rockets are assembled and launched. Our guide explained various Radars used for protecting the rocket during lightning, rocket propellants used in different stages of the rocket, rocket lift sequences.... etc.



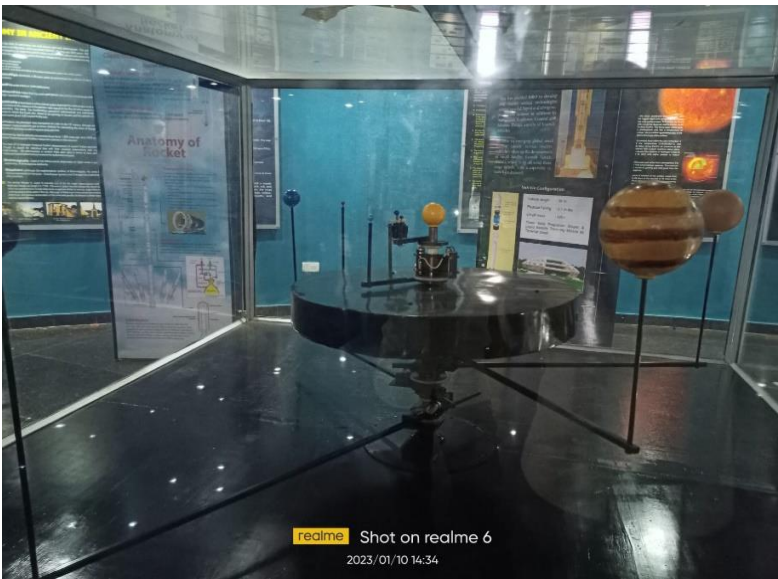


#### Session 4: (FIRST LAUNCH PAD- 1.10 pm)

During this session, we were taken to the first launch pad where generally the PSLV (low to moderate weight) rockets are assembled and launched. The first launching pad is used for weather forecasting satellites, educational satellites, agriculture-related satellites, commercial satellites, .... etc.

#### Session 5: (Museum)

At around 2.30PM, After lunch, we were taken to the SHAR Museum where the history of ISRO, starting from the first Indian satellite Aryabhata to the recent Gaganyaan mission was displayed. The story of the Indian space program is comprised of 6 sections History, education, technology, applications, global, and the future. This visit has given us an insight into ISRO's exciting achievements and future plans.



3. Planetary view in space museum



4. space museum

**Conclusion:**

Overall, the training was very useful and it is like exposure to us about the practical working environment. We understood how our curriculums are used in companies. They also provide students a good opportunity to gain full awareness about industrial practices. With this industrial visit, we get awareness about new technologies and different areas of research in applied science.

**Special Thanks**

We would like to thank our college management Sri G. Brahmaiah, Sri C. Srinivas Baba, and Sri. M.M. Kondaiah for being the source of inspiration to all the students. And also, we would like to thank our CEO Dr. Rapaka Vijayakrishna, Principal Dr. M Suresh, Vice Principal & Dean Mrs. M. Gnana Priya, HOD Dr. M. Chiranjeevi and The faculty members Mrs. S.M.Nigar, Mrs.E.Sasikala Reddy, Mr.P. Kasthuraiah and Mrs.Abhinaya engaged the students with the assistant of Mr.N.kumar and all the ECE department staff for their wonderful guidance and support.

Finally, with the kind cooperation of the students , the coordinators and the technical team of SDSC SHAR ,the visit went on successfully.

Submitted by

**II B. Tech. ECE students**



**A REPORT ON**  
**Industrial Visit to**  
**National Atmospheric Research Laboratory (NARL) - Gadanki, Tirupati.**

Date:04-12-2023

**INTRODUCTION:**

An industrial visit to NARL, Gadanki near Tirupati an autonomous society supported by DOS has been organized by Department of Electronics and Communication Engineering of Gokula Krishna college of Engineering- Sullurpet, for 29 students of B.Tech II<sup>nd</sup> & III<sup>rd</sup> year on 1<sup>st</sup> December, 2023 who were accompanied by four faculty members Dr. M. Chiranjeevi, Vice-Principal & HOD, Mrs. S. M. Nigar, Assoc. Prof., Mrs. E. Sasikala, Asst. Prof., Mrs. T. Anupama, Asst. Prof., and lab technician Mr. S. B. Kishore Kumar.



**OBJECTIVE:**

The objective of the visit was to provide a technical exposure to the students about atmospheric research and advancements in technology. The visit not only provided a good insight into the quality of research happening in the area of atmospheric technology but also gave great

exposure to the students about the future career prospects and areas of research activities under seven major groups namely Radar Application and Development Group, Ionospheric and Space Research Group, Atmospheric Structure and Dynamics Group, Cloud and Convective Systems Group, Aerosols, Radiation and Trace Gases Group, Weather and Climate Research Group and Computers and Data Management Group.

### **ABOUT NARL:**

NARL is an autonomous research laboratory fully funded by the department of space, Government of India and involved in carrying out fundamental and applied Research in atmospheric and space sciences. It had its humble beginning in 1992 as The National Mesosphere-Stratosphere - Troposphere (MST) Radar facility. NARL has now become one of the prime centers for atmospheric research in the country and operates a state-of-the-art MST radar, Rayleigh/Mie Lidar, Boundary layer Lidar, sodium Lidar, Lower atmospheric wind profiler, sodar, disrometer, optical rain guage, GNSS-Navic receiver, automatic weather station.



### **SUMMARY OF THE VISIT:**

One bus with 29 students and four faculty members and one lab technician started from our main college campus at 7:30 A.M. on 01/12/2023 and reached there by 09.30 A.M. After several security checks and administrative formalities, Students were taken to inside the NARL building.

### **Session 1: (visited 50-m Tower):**

First visited 50-m tower guided by Mr. Chandrakanth. The 50-m instrumented tower is being operated at NARL since 2009. It hosts both fast sensors (Sonic anemometer – RM Young (81000) and IR hygrometer – Li-COR) at two levels (4 m and 8 m) and slow sensors for meteorological parameters (temperature, relative humidity, wind speed and direction) at 6 levels (2, 4, 8, 16, 32 and 50 m). The pressure and incoming shortwave and longwave radiation are measured at 1.2 m altitude. The radiation sensors, soil temperature and moisture profile probes and a tipping bucket rain gauge were installed 20 m away from the tower towards south to minimize shadow effects. The sensible and latent heat fluxes are estimated using eddy covariance technique employing 20 Hz-resolution measurements from the ultrasonic anemometer and IR hygrometer. The fluxes along with radiation and sub-surface measurements provide an opportunity to study the energy balance in a variety of atmospheric conditions.

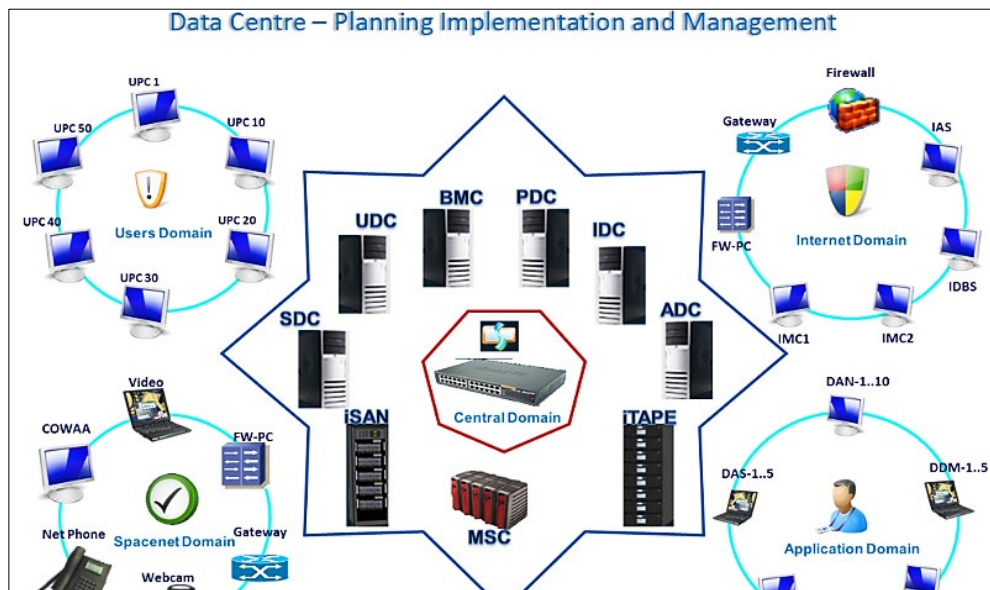


### Session 2: (Seminar hall-11.30 A.M)

We were taken to the Seminar Hall at 11.30 am. First, they played a video about NARL. Around 20 minutes we saw a video and they explained about Aerosols, radiation and trace gases.

### Session 3: (DATA CENTRE -12.00 P.M)

During this session guide Ramana explained about how the overall data is stored. The data flow and management would be centrally controlled by a server known as Primary Domain Controller (PDC).



The PDC would ideally control other servers like User Domain Controller (UDC), Backup Management Controller (BMC), Internet Domain Controller (IDC), Spacenet Domain Controller (SDC), and Application Domain Controller (ADC). The central domain contains these

aforementioned servers along with low-cost super computer for modeling, iSAN as secondary data storage and iTAPE as tertiary storage. The iSAN would contain 150 TB of data storage capacity. The BMC will be assigned to take auto backup from the iSAN to the iTAPE periodically with a predefined policy.

#### **Session 4: (DATA CENTRE II- 12.30 P.M)**

In this session, the guide Mr. Madhav explained about how the data is stored about weather forecasting and also, we watched the live weather CCTV footage. The systems used in this are HFC systems.

#### **Session 5: (MST RADAR- 1.00 P.M)**

The MST(Mesosphere-Stratosphere-Troposphere) radar located at Gadanki is an excellent system used for atmospheric probing in the regions of Mesosphere, Stratosphere and Troposphere (MST) covering up to a height of 100 Km. Radar operates at 53 MHz with a peak power of 2.5 MW. The phased antenna array consists of two orthogonal sets, one for each polarization of 1024 three element Yagi-Uda antennas arranged in a 32 x 32 matrix over an area of 130 m x 130 m.



The two sets are co-located with pairs of crossed Yagi's mounted on the same set of poles. The array is aligned along the geomagnetic axes to enable the radar beam to be transverse to the Earth's

magnetic field for ionospheric backscatter application. The array of either of the polarizations is illuminated using 32 transmitters of varying power, each feeding a linear sub-array of 32 antennas.

### **Conclusion:**

Overall, the training was very useful and it is like exposure to us about the practical working environment. We understood how our curriculums are used in companies. They also provide students a good opportunity to gain full awareness about industrial practices. With this industrial visit, we get awareness about new technologies and different areas of research in applied science.



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**Submitted by**

II & III B. Tech. ECE students