



Report of
GTU PG SCHOOL
Student Educational Visit
at
SATCOM, BISAG,
Gandhinagar
on
11th March-2015

Introduction:

Gujarat Technological University PG SCHOOL (106) running four master course in Network Security, Wireless & Mobile Computing, High Performance Computing and VLSI & Embedded specialization. As per our the curriculum, Engineering students are expected to visit prominent industries and companies for the practical exposure and insight to the real working environment. We have plan to visit SATCOM, BISAG, Gandhinagar on 11th March-2015 for our students.

The industrial visit is considered as the most tactical methods of teaching. It provides students with an opportunity to learn practically through interaction, working methods and employment practices. Visiting a company gives students a practical perspective on the world of work, it gives them exposure to current work practices as opposed to possibly theoretical knowledge being taught at college.

We have started our educational visit at 01:00 PM on 11th March-2015 with **69** students and **5** Faculty members of GTU PG SCHOOL. First we met Mr. Jayesh Makwana, Public Representative Person at BISAG. He gave brief about BISAG and its activities in various areas as following:

About BISAG:

Bhaskaracharya Institute For Space Applications And Geo-informatics (BISAG) Established In April, 1997 Under Gujarat Government Resolution Of Education Department, GR No. - 1096-21. Dated February 26, 1997.

It is a State Level Nodal Agency To Facilitate The Use Of Space And Geo-Spatial Technologies For The Planning And Developmental Activities Pertaining To Agriculture, Land And Water Resource Management, Wasteland/Watershed Development, Forestry, Disaster Management, Infrastructure And Education.

Activity of BISAG

- **Satellite Communication:** To promote and facilitate the use of satellite broadcasting network for distant interactive training, education and extensions.
- **Remote Sensing Applications:** For inventory mapping, developmental planning and monitoring of natural and man-made resources.
- **Geo-informatics System:** To conceptualize, create and organize multi-purpose common digital database for sector and thematic applications for various users.
- **Photogrammetric:** For creation of Digital Elevation Model, Terrain characteristics, Resource planning etc.
- **Global Navigation Satellite System and Land Survey:** For Location based services, Geo-referencing, Engineering Applications and Research.
- **Disaster Management:** To Prepare geo-spatial information to provide necessary inputs to Government to assess and mitigate damage in the event of disaster.

- **Software Development:** To provide low-cost Decision Support System, Geo-informatics applications (desktop as well as web based) to user for wider usage.
- **Technology Transfer:** To transfer technology to a large number of end users.
- **Value Added Services:** To provide tools which can be customized as per the needs of the users.
- **Education, Research and Training:** To provide education, research and training facilities to promote a number of end users through Academy for Geo-informatics.

After student interaction with Mr. Jayesh, we met Mr. Arpit Doshi, Broadcast Engineer. He gave us necessary information about SATCOM and equipment of SATCOM and its functionality.

About SATCOM:

SATCOM NETWORK is a satellite communication network service consisting of a subsidiary network of various educational institutions, government departments, voluntary agencies etc .to facilitate easier and faster distant interaction in the developmental and educational activities of the state.

There are three main parts and it consist of:-

- **The Studio**
- **The control room**
- **The Earth Station**

The Studio: - A studio is the place from where the Audio and Video signal has been generated with the help of different kinds of instruments and these instruments are explained below, the full process of a studio can be explained with the help of this instruments. The BISAG mainly consists of Ten studios.

The studio floor is equipped with cameras, microphones, caption stands, white board, Dias, chairs, monitors, lights, speakers, Documentary camera, PC, fax, Projector, Air Conditioners , Digital Clock, Head Phone, Wireless Lapel, Television etc.



GTU PG SCHOOL Student in SATCOM Studio

Control Room:-

The Audio signal and video signal generated from studio is captured at the control room and then controlling of that signals are taken place. The signal is controlled, Amplified and then given to the Earth station. The controlling and Amplification of signal is done with the help of different kinds of instruments. These Instruments are explained below with its separate images as shown below.

BISAG has three control rooms. In Control rooms Audio & Video are control and amplify, mixes process done. Equipment list is shown below.



GTU PG SCHOOL Student in SATCOM Control Room

List Of Equipments:-

- **Video Cassette Recorder:** VCR Generally Used To Playback The Visual Clips During A Lecture Or Presentation. It Can Also Record. A Separate VCR Can Also Be Used For Recording The Talkback Programs.
- **Component Digital Vision Mixer:** Vision Mixer Mixes Outputs From Cameras, VCRs, Computers And Other Video Sources And Produce Mixed Video Outputs. It Superimposes Titles on the Visuals and Can Produce Any Visual Effect between Two Sources.
- **Audio Distribution Amplifier:** It Is Used For Multiple Outputs To Connect Various Equipment Like Speakers, Microphones And Audio Mixers.
- **Video Distribution Amplifier:** It Is Used For Multiple Outputs To Connect Various Equipment Like Monitors, VCRs And Video Mixers.
- **Waveform Monitor/Vectorscope:** It Is Used To Show The Waveform Of Different Video Sources, Respectively.



PSTN Equipment

- **Audio Video Routing Switcher:** It Is Used To Connect One Input Channel From Twelve Different Channels To Four Different Output Channels.
- **Test Signal Generator:** It Is Used For Giving Test Signal To All The Video Equipment.
- **Logo Generator Pc:** It Is Used To Generate A Logo On A Master Video.
- **Video Record Pc:** This Pc Is Used For Record Video. It Functions Capturing, Editing And Making The Movies.

Earth Station:-

There are two different signal received at the Earth station from the control room and the two different signals are firstly the VIDEO signal and the AUDIO signal. Here in BISAG there are two Earth station The one for BROADCASTING Earth station The Second is the DVB-RCS HUB For live teleconferencing. Firstly I am going to tell about the BROADCASTING Earth station in BISAG. The image of a BROADCASTING Hub is as shown below. A last we have visited BROADCASTING earth station.

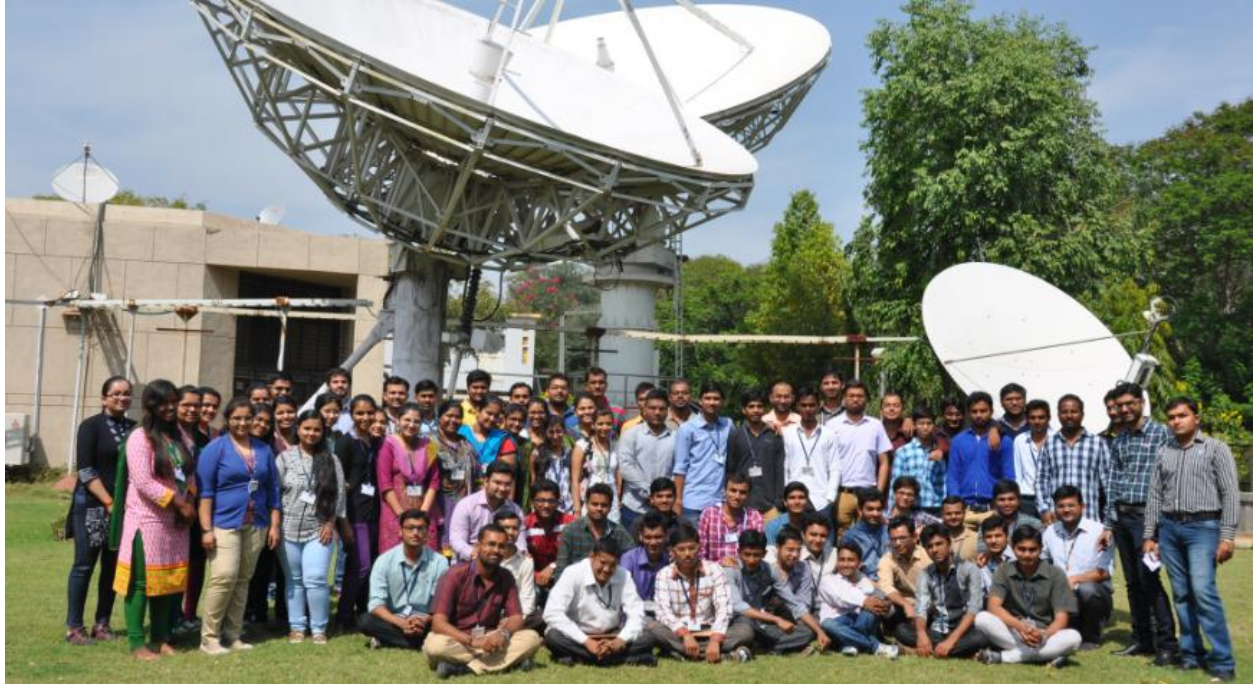
Visit ends after all these information sharing from Mr. Arpit Doshi to our students & Faculty members.



SATCOM Earth Station Controller



GTU PG SCHOOL Student & Faculty Group Photo



GTU PG SCHOOL Student & Faculty Group Photo