Don Bosco Institute Of Technology

Industrial visit report: SAMEER Kharghar

Objective:

The industrial visit was intended to provide students of Electronics and telecommunicatione ngineering with required exposure to the working environment and practical knowledge. The motive was to learn and supplement the class room teaching.

Company Visited: SAMEER Kharghar, Navi Mumbai.

Duration: 1 Day.

Date of Visit: 2018

Number of Students participated: 55 Students.

Faculty & Staff members accompanied: PROF.Namita Agarwal and PROF. Naheed Anjum Khan

Outcome of the visit: The main objective behind the visit was to make the students aware about technology used in different industries. The industry was selectively chosen so that the students could relate and understand the major role played by each one of them.

ABOUT SAMEER:

SAMEER was set up as an autonomous R & D laboratory at Mumbai under the then Department of Electronics, Government of India with a broad mandate to undertake R & D work in the areas of Microwave Engineering and Electromagnetic Engineering Technology. It is an offshoot of the special microwave products unit (SMPU) set up in 1977 at the TATA INSTITUTE OF FUNDAMENTAL RESEARCH (TIFR), Mumbai. SAMEER, Mumbai was setup in 1984.

SAMEER has been a pioneer in the development of technology in several areas.

It has developed:

- India's first MST Radar which is also the 2nd largest in the world.
- India's first indigenously developed Linear Accelerator for Cancer treatment.

- Energy efficient Drying/Heating System for textile, Food, Ceramic, Chemical, Pharma, Rubber applications through RF/Microwave.
- Microwave dis-infection system for hazardous hospital waste.
- Code division multiple access [CDMA] receiver.
- Microwave data link system [MDLS] for user agency.
- Broad-band sleeve monopole antenna .
- Wireless frequency hopping UHF data link.

It has established:

- India's first center for design and engineering facility for Opto Electronic devices.
- Class ten thousand clean room facility for space electronics hardware development.
- Full-fledged EMI/EMC test & evaluation facility for CE marking.
- RF/Microwave Antenna Measurement test facility.
- Thermal design and engineering facility.

At SAMEER:

Class was divided in two groups one group went for designing section and other went for testing section.

In designing section following subsections were shown:

- Fitting Shop were the benting, cutting and drilling of metals in done. Such as copper, brass, aluminium and tungsten.
- Milling section were metals are given required shape for medical applications.(metals are 99% pure)
- Turning and CNC section: NiCro alloy is used here. Finishing of the milling section job is done here.

In testing section following subsections were shown:

- Linear accelerator which is used for treatment of cancer people was shown and working of the same was explained.
- Three control systems:
    1. Modulation
    2. Stand
    3. Gauntry
- Vacuum Furnace hall: This has cavity designed for 2998MHz baud rate. It also has vector network analyser for quality check of S-parameters. It also has bakry oven working at 6000rpm providing ionization pump. It has annealing furnace for high vacuum brazing.

- Hydrogen Furnace hall: It has two parts dome structure and nitrogen pump. So first in nitrogen section the outer part of metal piece is heated and then hydrogen is flown over all the copper part at 600-800 degree Celsius. Dome section has inner dome and outer layer. Inner dome is used to remove air present inside the cavity to prevent oxidation and outer layer is used as heating furnace.

So after showing this two sections they showed us the presentation about the topics on which research is going on currently in SAMEER and then showed us four labs respectively for four different types of EMI:

- CE(common emission):CE lab which limits the noise voltage on main line.
- RE(radiated emission):Semi-Anechoic Chamber which have ferrite tiles for no refection to take place since they absorb RF waves.
- CS(common susceptibility):Shield Room which have wooden and galvanic platting so that heat sink takes place.
- RS(radiated susceptibility): Electrostatic Discharge test.

After visiting all the above sections and labs we were able to achieve the above mention objective. So, then we had snacks and left the place by taking good learning and knowledge.

Class photo taken at SAMEER: