

## **Centre for Excellence in Telecom Technology**

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### **and Management**

### ***Industrial Visit***

**Venue:** MTNL, CETTM, Powai

**Date:** Saturday, September 23, 2017

**Time:** 10:30 a.m. to 2:00 p.m.

#### **About the Visit:**

We visited the MTNL labs in the CETTM, Powai; to see the industrial applications of the course syllabus of the subject, Mobile Communication. The visit began with us being briefed about the evolution of the telecommunication industry across the world. Emphasis was given towards the rising importance of Information Technology in this sector, creating more jobs for engineers and the pace at which the telecom industry is developing in India.

As a part of the visit we were taken to four laboratories that are set-up to teach students about the infrastructure implemented in the country for wireless telecommunication.

#### 1. OCB Laboratory

In this laboratory, we were shown the

- i. Switching Units
- ii. Network Access Units
- iii. Subscriber Terminating Units
- iv. Call Control Units
- v. Operation and Maintenance Center

The functions of each were explained in detail. The laboratory had the capacity of handling 2 lakh subscribers at one time. All relevant data acquired in this laboratory is stored into portable hard drives and then sent to the main data storage system. Any call undergoes the process of sampling, quantization and encoding, ie analog to digital signal conversion.

#### 2. SDH Laboratory

SDH (Synchronous Digital Hierarchy) is a standard technology for synchronous data transmission on optical media. It is the international equivalent of [Synchronous Optical Network](#). Both technologies provide faster and less expensive network interconnection than traditional PDH (Plesiochronous Digital Hierarchy) equipment.

In digital telephone transmission, "synchronous" means the bits from one call are carried within one transmission frame. "Plesiochronous" means "almost (but not) synchronous," or a call that must be extracted from more than one transmission frame.

SDH uses the following Synchronous Transport Modules (STM) and rates: STM-1 (155 megabits per second), STM-4 (622 Mbps), STM-16 (2.5 gigabits per second), and STM-64 (10 Gbps).

**GSM Laboratory**  
We were shown the basic set-up of the local base transceiver station to which our mobile phones connect to. There were three antennas placed in the corners of the room. Each with a different application of 2G and/or 3G and 4G. The BTS for 3G is called node B while that of 4G is called node E. A cell radius was said to be of 35 km, with each antenna being a directional antenna, with the cell sectoring of 120 degrees and 65 degrees

### 3. Broadband Laboratory

We were explained about the sequence of operation in broadband communication with a block diagram. We were explained the functions of ADSL, DSLAM, BRAS, Splitter, NAT, DP, RADIUS, DHCP and DNS.

Photographs:

#### 1. GSM Laboratory



#### 2. SDH Laboratory



3. OCB Laboratory

4. Broadband Laboratory

