



**A Report
On
Technical Visit at

“Zydus Hospital,
Anand, under IEEE Students Branch”
On
Date: 26/02/2020
By
4th Year EC Department
Students of**

**BVM Engineering College
(Affiliated to Gujarat Technological University)
(An Autonomous CVM Institution)**

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Summary Table

Name of Industry/Organization Visited:	Zyklus Hospital, Anand		
Address of Industry/Organization Visited:	Anand Lambhvel Road, Anand-388120		
Information of Industry Person:	Name:	Dr Abhishek Soni	
	Designation:	Manager-Operations and Hospital Services	
	Department:	Operation and Hospital Services	
Contact Information of Industry Person:	Contact No:	8128663224	
	Email Id:	abhisheksoni@zyklus hospitals.com	
Name of Principal of the Institute:	Dr. I N Patel		
Department Name of the Institute:	EC Engineering Department		
Name of Head of the Department:	Dr. B C Goradiya		
Year/Semester of the Students	8 th - Sem-2020		
Specific Subject under which visit organized:	Biomedical Instrumentation		
A professional body under which visit organized:	IEEE Student Branch, BVM, V V Nagar		
Date and Time of Departure:	26/02/2020, 2:45 pm		
Date and Time of Arrival:	26/02/2020, 3:00 pm		
No of Days for Visit:	1		
Accompanying Staff Name:	1	Dr. Bhargav Goradiya	
	2	Dr. Darshan Dalwadi	
	3	Prof Ghansyam B Rathod	
Contact information of Staff:	No	Contact No:	Email Id:
	1	9624398770	ghansyam.rathod@bvmengineering.ac.in
	2	NA	NA
	3	NA	NA
Mode of Travel:	Personal Vehicle		
No of Boys Students:	17		
No of Girls Students:	7		
Total No of Students:	24		
Accommodation Venue Name and Address:	NA		

Main group photo at Visit Place



Figure 1: Entrance of the Zydus Hospital, Anand

Brief introduction of company/organization.

Zydus Hospitals has very selectively appointed the best of American / Europe Trained Medical Specialists, Paramedics, Nursing & Administrative Staff. This would be amongst the handful of hospitals in its league which has dedicated full-time medical specialists. This shall ensure complete round the clock care and availability.

Please be reminded that at Zydus, we are committed to Spreading Smiles, along with our quality of personalized care our pricing too shall bring smiles.

At Zydus Hospitals, we are committed to LIFE.

We, at Zydus Hospitals, are committed to excellence and quality with an established focus on the well-being of our patients. We provide the right mix of cutting edge technology, warmth, and compassionate care. Backed by the best team of medical professionals and procedures, we offer the best in private healthcare in a cost-effective way.

We provide the highest standard of clinical skills and nursing care across an extensive range of specialties and attract world-class doctors and surgeons from leading hospitals.

Located in Anand, Gujarat, the hospital offers locational advantage and world-class infrastructure for the patients and their visitors and is one of the most modern private hospitals in India, equipped with state of the art technology.

Delivering an array of medical services, we offer in-patient, out-patient, daycare treatment, surgery, emergency and trauma care in the finest surroundings. What's more, these services can be provided as a part of your own private health insurance scheme or self-finance as the case may be.

We believe that focusing on the comfort of our patients helps in their recovery. We cater to individual tastes and requirements to ensure that patients feel as relaxed and comfortable as possible during their stay.

We bring you details about our facilities and the extensive range of medical specialties available at Zydus Hospitals.

At Zydus Hospitals they are committed to excellence and quality with an established focus on the well-being of patients. They provide the right mix of cutting edge technology, warmth, and compassionate care. Backed by the best team of medical professionals and procedures, they offer the best in private healthcare in a cost-effective way.

They provide the highest standard of clinical skills and nursing care across an extensive range of specialties and attract world-class doctors and surgeons from leading hospitals.

Located in Anand, Gujarat, the hospital offers locational advantage and world-class infrastructure for the patients and their visitors and is one of the most modern private hospitals in India, equipped with state of the art technology.

Delivering an array of medical services, they offer in-patient, out-patient, daycare treatment, surgery, emergency and trauma care in the finest surroundings.

They believe that focusing on the comfort of patients helps in their recovery. They cater to individual tastes and requirements to ensure that patients feel as relaxed and comfortable as possible during their stay.

Objective

The main objective of this visit was to make the students realize the importance of biomedical engineering and the role of biomedical engineers in hospitals. Along with this the students also got to see the latest technology used in hospitals for various vitals measurements and for diagnosis of fluid samples.

Outcome

- The students have able to understand the basic parameters of the measurements used in hospitals for the Biomedical Potential.
- They also understand the troubleshooting and precautions taken at the time of the procedure of such potential measurements.

Few of the roles of biomedical engineer

- Purchase of equipment (which includes inviting quotations/tenders for purchasing new equipment's/machines & preparing comparison chart for the same).
- Writing specifications for all the new equipment & machinery.
- Evaluating the equipment & machinery on the basis of its initial cost as well as its operating cost: since many times, the high maintenance & operating cost of the equipment turns out to be much higher than the initial cost.
- Inspection of incoming equipment & machinery and doing pre-acceptance checks before official acceptance & payment.
- Maintaining records; for e.g. equipment history.
- Setting standards & ensuring their compliance.

- Arranging for training programs for personnel in the clinical engineering department as well as the end-users.
- Maintaining the equipment to the best of its performance by organizing a planned maintenance program for all equipment and attending to emergency breakdowns and repairs.
- Advising & providing expertise to the medical staff & administration
- Maintaining equipment inventory for all existing & incoming equipment's

Visit of Various Section of Zydus Hospital

SYRINGE PUMP

It is a programmable pump that provides an affordable solution to the sophisticated dispensing and flows control applications.

INFUSION PUMP

An external infusion pump is a medical device used to deliver fluids into a patient's body in a controlled manner. There are many different types of infusion pumps, which are used for a variety of purposes and in a variety of environments. Infusion pumps may be capable of delivering fluids in large or small amounts and may be used to deliver nutrients or medications – such as insulin or other hormones, antibiotics, chemotherapy drugs, and pain relievers. Some infusion pumps are designed mainly for stationary use at a patient's bedside. Others, called ambulatory infusion pumps, are designed to be portable or wearable.

ECG MACHINE

Electrocardiography (ECG or EKG*) is the process of recording the electrical activity of the heart over a period of time using electrodes placed on the skin. These electrodes detect the tiny electrical changes on the skin that arise from the heart muscle's electrophysiologic pattern of depolarizing during each heartbeat. It is a very commonly performed cardiology test. In a conventional 12-lead ECG, 10 electrodes are placed on the patient's limbs and on the surface of the chest. The overall magnitude of the heart's electrical potential is then measured from 12 different angles ("leads") and is recorded over a period of time (usually 10 seconds). In this way, the overall magnitude and direction of the heart's electrical depolarization are captured at each moment throughout the cardiac cycle. The graph of voltage versus time produced by this noninvasive medical procedure is referred to as an electrocardiogram.

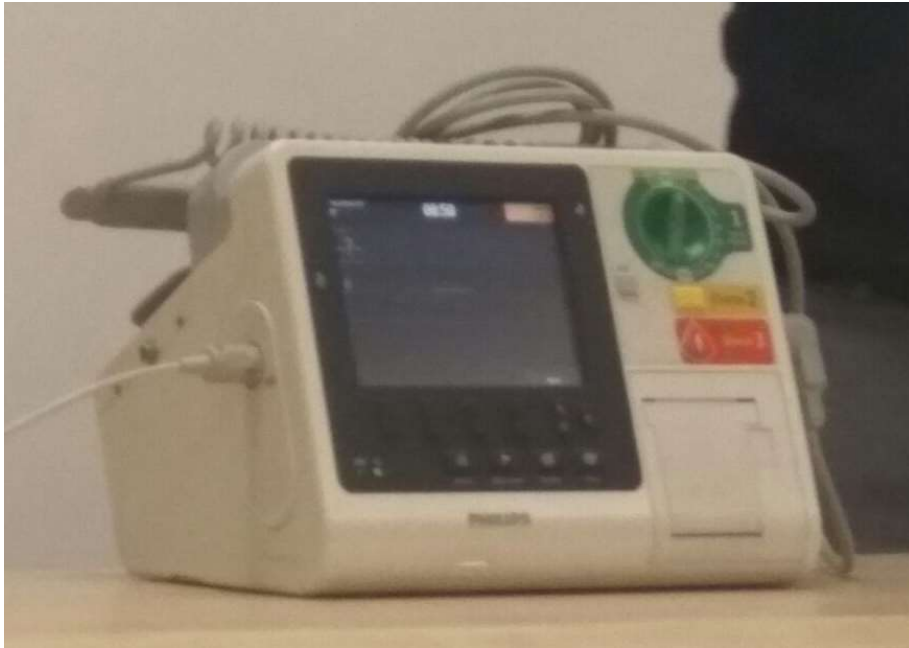


Figure 2: ECG Machine

X-RAY

An **X-ray generator** is a device used to generate X-rays. It is commonly used by radiographers to acquire an x-ray image of the inside of an object (as in medicine or non-destructive testing) but they are also used in sterilization or fluorescence.

An x-ray machine is composed of a control console which enables the x-ray technician to select various x-ray techniques suitable for that specific exam, an x-ray generator that creates and produces the desired KV (kilovoltage), MA (milliampere) and an x-ray tube. The X-ray tube, like any vacuum tube, contains a cathode, which directs a stream of electrons into a vacuum, and an anode, which collects the electrons and is made of tungsten to evacuate the heat generated by the collision. When the electrons collide with the target, about 1% of the resulting energy is emitted as X-rays, with the remaining 99% released as heat.



Figure 3: X-Ray Machine

BONE DENSITOMETRY

Bone densitometry, also called dual-energy x-ray absorptiometry or DEXA, uses a very small dose of ionizing radiation to produce pictures of the inside of the body (usually the lower spine and hips) to measure bone loss. It is commonly used to diagnose osteoporosis and to assess an individual's risk for developing fractures. DEXA is simple, quick and non-invasive. It's also the most accurate method for diagnosing osteoporosis.

CT SCAN/MRI:

A CT Scan (or CAT Scan) is best suited for viewing bone injuries, diagnosing lung and chest problems, and detecting cancers. An MRI is suited for examining soft tissue in ligament and tendon injuries, spinal cord injuries, brain tumors, etc. CT scans are widely used in emergency rooms because the scan takes fewer than 5 minutes. An MRI, on the other hand, can take up to 30 minutes.

- An MRI typically costs more than a CT scan. One advantage of an MRI is that it does not use radiation while CAT scans do. This radiation is harmful if there is repeated exposure.



Figure 4: MRI Machine

STUDENTS LIST

Sr. No	ID No.	NAME
1.	16ET409	OZA MRUDANG JAYESHBHAI
2.	16ET410	SAKSHI JAIN
3.	16ET411	SHRUTI JAIN
4.	16ET415	SHIKHAR MAHESHWARI
5.	16ET417	GAUTAM VIVEKANANDAN
6.	16ET419	PATEL MEET BINOYKUMAR
7.	16ET421	GUPTA MUSKAN RAVI
8.	16ET427	MANGUKIYA RUSHABH PRAVINBHAI
9.	16ET429	PARSANA DHRUVIN RAMESHBHAI
10.	16ET436	JAIN DHARMIKKUMAR PARESHKUMAR
11.	16ET440	PATEL AKSHAR RAJESHBHAI
12.	16ET444	D. ATCHAYA NADAR
13.	16ET447	DUBEY ASHISH VIJAY
14.	16ET449	SHAH JINISHKUMAR VIRENKUMAR
15.	16ET450	KOSTA URVISH NIRMAL
16.	16ET452	GONDALIYA SWETA NITINBHAI
17.	16ET454	JARIWALA ZEEL ASHISH
18.	16ET455	JOSHI SOHAM
19.	16ET456	INDERJEET SINGH SEHRA
20.	16ET457	KUMARI DHWANI AGRAWAL
21.	16ET460	ODEDRA PRAKASH ARJANBHAI
22.	16ET466	MAKWANA HERRY CHETANBHAI
23.	16ET468	AKASH N SACHAN
24.	17EC601	BANTHIA PUNITA KAMLESHKUAR