

With the blessings of Their Holinesses



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Accredited with “A” Grade by NAAC

**DEPARTMENT OF ELECTRONICS AND
INSTRUMENTATION ENGINEERING**



Visit to
**SANKARA MULTI SPECIALITY
HOSPITAL**
On
08.02.2024
REPORT



SRI CHANDRASEKHARENDRA SARASWATHI VISWA MAHAVIDYALAYA
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DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING

16/02/2024

EIE dept. Industrial Visit Report: Sankara Multi Specialty Hospital

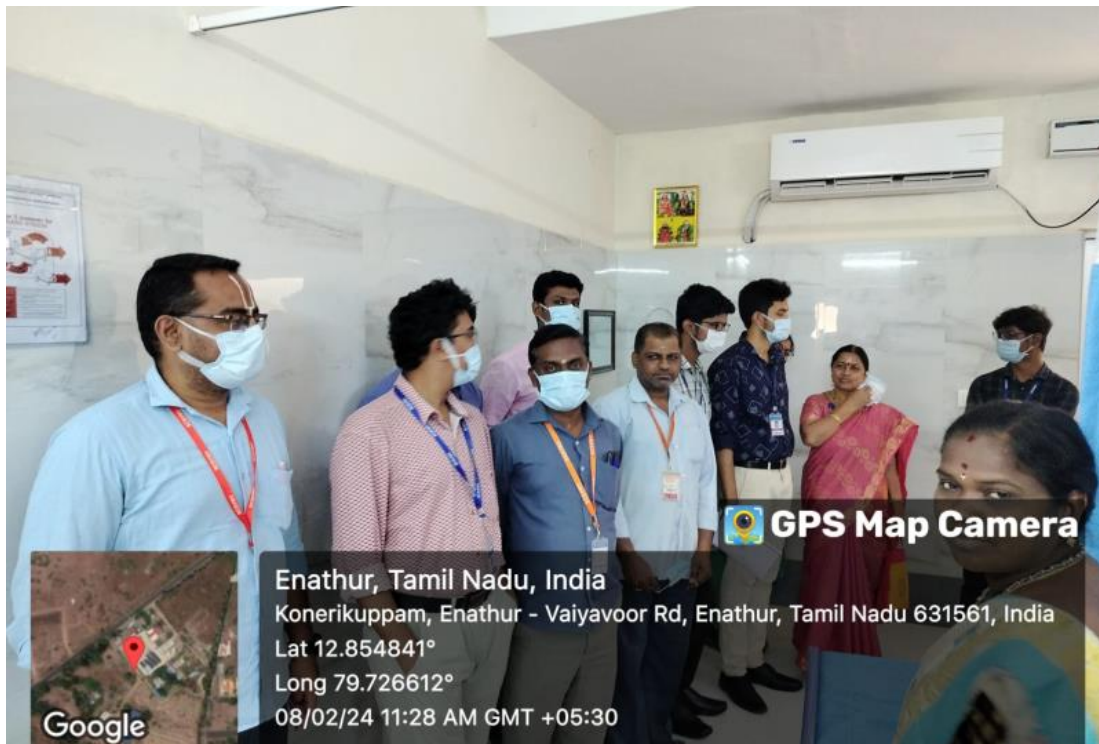
Date of Visit: 08/02/2024

Location: Enathur, Kanchipuram

Sub: Submission of Detailed Report –visit - Sankara Multi Speciality Hospital - Reg

On February 8, 2024, students from Mechatronics Engineering of Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya (SCSVMV) embarked on visit to Sankara Multi Speciality Hospital located in Enathur, Kanchipuram. The visit provided students with valuable insights into the operations and processes involved in Advanced Bio Medical Instrumentation. Mr.M.Nandha Kumar, Executive Officer Sankara Multi Speciality Hospital, Konerikuppam Village, Enathur Road- Kanchipuram, 631561, commenced the visit with an introductory speech, elaborating on the operations and process of Bio medical instruments and medical sensors by the technical staff experts.

SANKARA MULTI SPECIALTY HOSPITAL PHOTO





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Introduction:

On 08/02/2024, we had the opportunity to visit Sankara multispeciality hospital. The purpose of the visit was to gain insights into various medical instruments, specifically focusing on dialysis equipment, ECG (Electrocardiogram), CPR (Cardiopulmonary Resuscitation), echo USG (Ultrasonography), doppler instruments, defibrillation, ventilators, as well as the separation and analysis of blood components including platelets, plasma, and RBC (Red Blood Cells) from donor blood. Additionally, we aimed to understand the blood decomposition process and the role of autoclaves in sterilization, including the disposal of blood.

Key Learnings:

- Dialysis: Crucial role in kidney failure treatment, removing waste and fluids.
- ECG: Diagnoses heart conditions by analyzing electrical activity.
- CPR: Hands-on training in chest compressions and rescue breaths for emergencies.
- Defibrillation: Restores normal heart rhythm with electric shocks.
- Echo USG & Doppler: Visualizes heart structure and function, detects abnormalities.
- Ventilators: Support patients with respiratory failure by providing oxygenation.
- Blood Analysis: Ensures safety and compatibility for transfusion.



- Blood Component Separation: Separates red blood cells, plasma, and platelets for specific needs.
- Plasma Thawing & Platelet Storage: Maintains quality and efficacy for transfusion.
- Autoclaving: Safely sterilizes contaminated materials and blood waste.

Over view of the visit

1. Dialysis Equipment:

We were introduced to the dialysis equipment, which is an essential component in the treatment of patients with kidney failure. The staff provided a detailed explanation of how dialysis works, emphasizing its role in removing waste products and excess fluids from the blood when the kidneys are no longer able to perform this function adequately. We learned about the different types of dialysis, such as hemodialysis and peritoneal dialysis, and the critical importance of regular dialysis sessions for patients' well-being and survival.

2. ECG (Electrocardiogram):

In the ECG department, we received a comprehensive overview of electrocardiography and its significance in diagnosing various heart conditions. The staff demonstrated the process of placing electrodes on the patient's chest, limbs, and torso to record the heart's electrical activity. We learned to interpret ECG readings, identifying abnormalities such as arrhythmias, myocardial infarction, and conduction disorders, which are crucial for timely intervention and treatment.

3. CPR (Cardiopulmonary Resuscitation):

At the CPR training area, we received hands-on training in cardiopulmonary resuscitation, a critical skill for responding to cardiac emergencies. Under the guidance of experienced instructors, we learned the correct techniques for chest compressions and rescue breaths, as well as the use of automated external defibrillators (AEDs). Through simulation exercises with CPR mannequins, we gained confidence in performing CPR effectively, potentially saving lives in emergency situations.

4. Defibrillation:

We witnessed a demonstration of defibrillation, an essential procedure for restoring normal heart rhythm in patients experiencing cardiac arrest or life-threatening arrhythmias. The staff explained the principles of defibrillation and the importance of delivering an electric shock to the heart to terminate abnormal electrical activity and allow the heart to resume its normal beating pattern. We learned about the different types of defibrillators, including manual and automated devices, and their appropriate use in emergency settings.

5. Echo USG Doppler Instrument:

In the echo USG and doppler department, we gained insights into the use of ultrasound technology for imaging and diagnosing various cardiovascular and abdominal conditions. The staff demonstrated the process of performing echocardiograms and doppler studies,



highlighting their role in assessing cardiac structure and function, detecting abnormalities such as valve disorders, and evaluating blood flow patterns in the heart and blood vessels.

6. Ventilators:

The session on ventilators provided us with a deeper understanding of mechanical ventilation and its critical role in supporting patients with respiratory failure. We learned about the different modes of ventilation, including assist-control ventilation and pressure support ventilation, and the parameters that can be adjusted to optimize ventilation settings based on the patient's condition. The staff emphasized the importance of ventilator management and monitoring to ensure adequate oxygenation and ventilation while minimizing the risk of complications.

7. Analysis of Donor Blood:

We were given a detailed overview of the process of analyzing donor blood to ensure its safety and compatibility for transfusion. The staff explained the various tests performed on donor blood samples, including blood typing, screening for infectious diseases such as HIV and hepatitis, and assessing blood cell counts and morphology. We learned about the importance of strict quality control measures and regulatory compliance in blood banking to prevent transfusion-related complications and ensure the provision of safe and effective blood products to patients in need.

8. Separation of Blood Components:

During our visit to the blood processing unit, we observed the centrifugation process used to separate whole blood into its component parts: red blood cells, plasma, and platelets. The staff demonstrated the operation of the centrifuge equipment, explaining how centrifugal force is used to separate blood components based on their density and sedimentation properties. We learned about the importance of each blood component and their respective clinical indications for transfusion, highlighting the critical role of blood component therapy in various medical and surgical settings.

9. Platelet Incubator and Blood Test:

In the platelet incubator area, we learned about the storage and handling of platelet units, which are essential for patients with bleeding disorders or undergoing chemotherapy. The staff explained the optimal conditions for storing platelets, including temperature control and agitation to prevent clot formation. Additionally, we observed blood tests being conducted to assess the quality and compatibility of donor blood, including crossmatching and antibody screening, to ensure safe transfusion practices.

10. Plasma Thawing Bath:

Another critical component of the blood processing unit is the plasma thawing bath, which is used to safely thaw frozen plasma units before transfusion. The staff demonstrated the operation of the plasma thawing bath, emphasizing the importance of controlled temperature regulation to prevent protein denaturation and maintain the therapeutic efficacy of thawed



plasma. We learned about the proper procedures for thawing plasma units and the importance of adhering to standard operating protocols to ensure patient safety and the delivery of quality blood products.

11. Disposal of Blood by Autoclaving Process:

Finally, we were briefed on the disposal of blood and biohazardous materials by autoclaving process. The staff explained the principles of autoclaving and how high-pressure steam is used to sterilize contaminated materials, including blood-contaminated instruments and waste. We learned about the importance of proper waste management practices and regulatory compliance in healthcare facilities to prevent the spread of infections and protect public health.

Conclusion:

In conclusion, the industrial visit provided us with valuable insights into various medical instruments and processes used in healthcare delivery and blood analysis. We gained practical knowledge and hands-on experience in critical areas such as emergency response, blood banking, and transfusion medicine. The visit deepened our understanding of the complexities of modern healthcare systems and the importance of interdisciplinary collaboration in providing safe and effective patient care. We extend our gratitude to the management and staff of Sankara hospital for their hospitality and for facilitating an informative and engaging visit.

Staff List

S.No	Name of Faculty	Designation
1	Dr.T.Lakshmibai	Assistant Professor
2	Dr.T.Sundar	Assistant Professor
3	Dr.N.C.A Boovarahan	Assistant Professor
4	Mr.K.Vinayagamoorthy	Lab Instructor

Students List

S.No	Register Number	Name of the Student
1	11229H001	N.Tirumala Hardik Srivatsa
2	11229H002	Sudhan.G
3	11229H003	Koushik Bharadwaj Vishnubhotla
4	11219H001	P Anantha Padmanabban
5	11219H002	Chittaluri Sai Phanichandra
6	11219H003	Dhullipalla Datta Sai
7	11219H004	Sri Sai Shravani Voleti
8	11209H001	Raghul .V