BIOMED 360

Genesis of Biomed 360

The ultimate goal of Biomed 360 is to get a virtual learning experience to comprehend the functioning of medical devices. This campaign focuses on bringing together all the students from the Biomedical sector. This campaign is a joint initiative by IEEE EMBS Young professionals,IEEE student volunteers and Biomedical Engineering students with the main aim of building the biomedical society. Here the biomedical students and graduates collaborate with biomedical professionals from various sectors and work on gathering data and information on medical equipments. Thus reaching out to common people, could be an eye opener to the biomedical society on building every student's knowledge regarding the versatile range of devices.This campaign shall bring out a resourceful detail on every medical equipments which not only aims at authentic information but also focuses on learnings of teamwork.

Campaign in a nutshell

Objective: Create videos/writeups which contains an abstract of perspective on medical equipment from all angles thus providing a bird's eye view of a medical equipment.

Target Group: Doctors,Biomedical Engineers,Manufacturers, Research Scholars, Maintenance engineers,Patients etc.

Volunteers: Biomedical Engineering students

Reach out to Biomed 360

Biomed 360 has an Instagram page through which our proposed videos are planning to be released.

Instagram Page : biomed360_bme

Email address : biomed360bme@gmail.com

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EQUIPMENTS

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DEFIBRILLATOR

Defibrillators are devices that helps to restore normal heartbeat by sending an electric pulse to the heart. They are used to correct an arrhythmia, a heartbeat that is uneven or that is too slow or too fast.

sona s

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DIALYSIS MACHINE

Dialysis is a treatment that filters and purifies the blood using a machine. This helps keep your fluids and electrolytes in balance when the kidneys can't do their job.

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MRI MACHINE

The MRI machine is a machine that patients lie within, and the MRI creates a strong magnetic field around the patient and related pulses of radio waves produce signals from the body that are detected and converted into images.

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OXYGEN CONCENTRATORS

Oxygen concentrator is a device that concentrates the oxygen from a gas supply (typically ambient air) by selectively removing nitrogen to supply an oxygen-enriched product gas stream.

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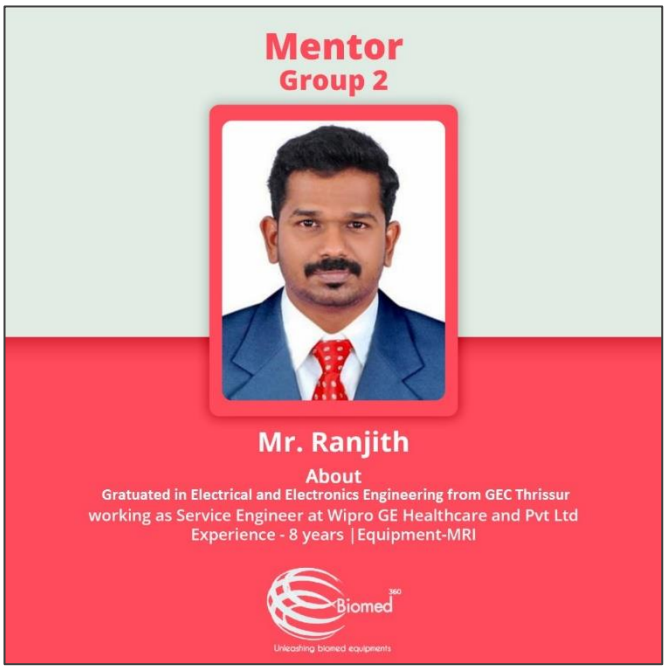
MENTORS



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MENTORS

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GROUP DESCRIPTION

GROUP 1

Equipment : **DIALYSIS MACHINE**

A machine used in dialysis that filters a patient's blood to remove excess water and waste products when the kidneys are damaged, dysfunctional, or missing. The dialysis machine itself can be thought of as an artificial kidney. The two main types of dialysis, hemodialysis and peritoneal dialysis, remove wastes and excess water from the blood in different ways. This machine also ` who are affected by malfunctioning of kidneys and help them to bring back their normal lifestyle.

Mentor : Mr. Sibin M Krishnan
Service Specialist-Dialysis-Freelancer

Leader : Deepthi GA - MBCET
Members :
Albin Simon - SCET
Ameena Muhammad -TKMIT
Clinto Martin - SCET
Jifeena Johnson - SCET
Krishnapriya S - SCET
Reshma N K - TKMIT
Steve - TKMIT
Vivek - MBCET

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GROUP 2

Equipment :**MRI MACHINE**

A non-invasive medical imaging technique used in radiology to produce three-dimensional images of anatomical and physiological processes of the body is MRI. It adopts the principle of nuclear magnetic resonance(NMR), which is a spectroscopic technique used to obtain microscopic chemical and physical data about molecules. This scan can be used as an extremely accurate method for disease detection and diagnosis like, in musculoskeletal problems, vascular abnormalities, prostate problems, soft tissues and bone pathology conditions, gastrointestinal conditions, ailments of the brain including tumor, spinal conditions and in ENT conditions. The benefits of an MRI scan relate to its precise accuracy in detecting structural abnormalities of the body along with less risk by avoiding radiation exposure.

Mentor : Mr. Ranjith
Service Engineer at Wipro GE Healthcare and PVT Ltd

Leader : Ajeena A K - TKMIT
Members :
Amrith Ajay - TKMIT
Beryl paulson - SCET
Don C John - SCET
Keerthi Das - SCET
Lakshmi K - SCET
Rishi Manoj - TKMIT
Sujin S Nair - MBCET

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GROUP 3

Equipment : **DEFIBRILLATOR**

Defibrillators are devices for restoring a normal heartbeat. They are used to prevent or correct an arrhythmia, a heartbeat that is uneven or that is too slow or too fast. There are different kinds of defibrillators: manual external defibrillator, manual internal defibrillator, automated external defibrillator (AED), implantable cardioverter-defibrillator (ICD), and wearable cardiac defibrillator. ICD is used in patients who are critically affected by arrhythmia. It works by using a high-intensity electrical current which is given through the paddles towards the patient's chest to depolarize the myocardium. This life-saving equipment is taken to cure the patient from sudden cardiac arrest. Treatment with a defibrillator can reduce the risk of sudden death by terminating ventricular arrhythmias

Mentor : Ms. Reshma P D
Biomedical Engineer

Leader : Linda Elizabeth M B - SCET
Members :
Abhinav Shekhar - MBCET
Anargha C P - SCET
Athira Vinod - TKMIT
Farsina P.S - SCET
Karthika A M - SCET
Malavika R - MBCET
Vishnu A J - MBCET

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GROUP 4

Equipment : **OXYGEN CONCENTRATOR**

An oxygen concentrator is a simple medical device which is used to concentrate the amount of oxygen in the air. The basic working principle of the instrument is to concentrate the amount of oxygen by removing the nitrogen from the air by using an absorbent called zeolite. This is mainly used in various industries including medical, pharmaceutical production, water treatment and glass manufacture. Nowadays it is commonly used in homes in the form of portable devices for the patient having bed rest. The main advantage of using an oxygen concentrator than an oxygen cylinder is that they are less dangerous. And these are more reliable.

Mentor : Mr. Vivek George
Managing Director, Trivia Innovation Pvt Ltd.

Leader : Febi Mariyam Chandy - TKMIT
Members :
Aghna N M - SCET
Angela Varghese - SCET
Ann Elizabeth Babu - MBCET
C Krishna - MBCET
Madhu Krishna A P - JCET
Rohith J Nair - MBCET
Vipina V V - MBCET

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GROUP 5

Equipment : **ECG MACHINE**

An ECG machine is one of the important medical equipment that is widely used in hospitals from casualty to OT. It gives the electrical function of our heart by recording the electrical activity by using electrodes placed on the body. It works on the principle that a contracting muscle generates a small electric current that can be detected and measured through electrodes suitably placed on the body.During an ECG up to 12 electrodes will be attached to the chest and limbs. The electrodes are sticky patches with wires that connect to the monitor. They record the electrical signals that make your heartbeat. A computer records the information and displays it like waves on the monitor or paper. ECG is widely used in medicine to monitor small electrical changes on the skin of a patient's body arising from the activities of the human heart.This simple and noninvasive measurement easily indicates a variety of heart diseases.

Mentor : Ms. Aminath Sabeena
Executive Assistant, Yovza Technologies.

Leader : Rosemol Toby - SCET
Members :
Agnes Placid - TKMIT
Gopika S D - TKMIT
Jeny Baiju - SCET
Madhumitha R Pillai - TKMIT
Rosemary E R - SCET

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GROUP 6

Equipment : **VENTILATOR**

A ventilator is a mechanical device to provide artificial ventilation or breathing to a patient. It delivers breaths to a patient who is physically unable to breathe, or breathing insufficiently and works by bringing oxygen to the lungs and taking carbon dioxide out of the lungs. The patients who require the need for a ventilator are those who are affected by lung disease (pneumonia, COPD), brain injuries, stroke and also in surgical cases after giving anesthesia. Its basic function is to produce positive airway pressure by inflating the lungs. Mainly ventilation can be of two types: invasive and non-invasive, with other varied forms for adult and neonatal. This is the most essential life-critical system for renewing people's life.

Mentor : Ms. K Kokila
Biomedical Engineer, Ananthapuri Hospital and Research Institute

Leader : Greeshma Bobby - SCET
Members :
Aiswarya M Rajan - SCET
Annu Mariya Jose - SCET
Anze Joshy - SCET
Aswathy P - SCET
Jasmine John - SCET
Shanty P Xavier - SCET
Sujisha Suresh - SCET
Sweta Manoj - SCET

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GROUP 7

Equipment : **HEART - LUNG MACHINE**

The heart-lung machine does work both of heart and lungs i.e., is pumping and oxygenating blood. The heart-lung machine intercepts the blood at the right atrium before it passes into the heart. Using a pump the machine delivers the blood to the reservoir, which adds oxygen to the blood. The pump then sends the oxygen-rich blood to the aorta and through the rest of the body. These machines are used in open-heart surgeries to replace a valve in the heart or fix a hole in the heart. This maintains the circulation of blood and oxygen content.

Mentor : Ms. Supriya
Cardiac Perfusionist

Leader : Hitha Jayapalan - SCET
Members :
Aiswarya Shajan - SCET
Antony Paul - SCET
Anusree K U - SCET
Hiba - TKMIT
Mariya Mathan - SCET
Sona Sajan- SCET
Sreelakshmi - SCET

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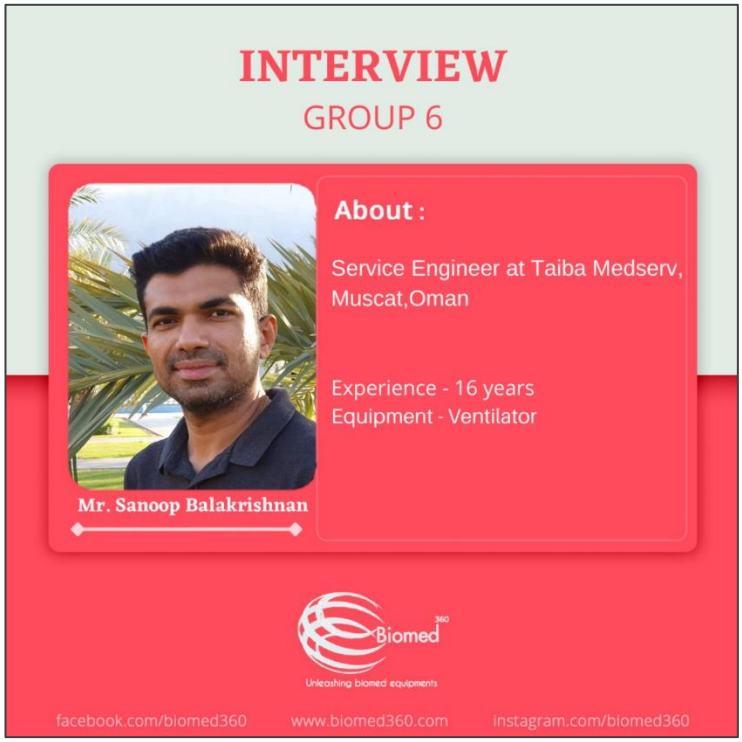
MEDICAL PROFESSIONALS



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INTERVIEW
GROUP 6

Dr. K V Padmanabhan

About :

Asst.professor, Department of pulmonary medicine,GMC Kannur,Pariyaram.
Worked as TB and chest consultant, Dist TB Officer,Kannur

Experience - 20 years
Equipment - Ventilator

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INTERVIEW
GROUP 3

Simi T.S.

About :

Pursued Diploma in General Nursing and Midwifery, from Rajah Charitable Medical Trust, Chavakkad.

Experience : Worked as a Staff Nurse in Hayath Hospital, as well as Rajah Hospital, Chavakkad. Currently, a staff nurse in the emergency department of Amala Institute of Medical Sciences.

Equipment : Defribillator

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INTERVIEW
GROUP 1

Ramshila AR

About :

Completed diploma in Dialysis Technician course from Aster MIMS, Calicut.
Pursued BSC in Renal Dialysis Technology from Rajeev Gandhi Institute, Banglore.

Experience: Dialysis technician in Aster MIMS Kottakkal, Malappuram as well as Kidney Foundation Hospital

Equipment : Dialysis Machine

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INTERVIEW
GROUP 5

Mr. Leio AV

About :

Currently pursuing MEngST(research), Medical Devices and technologies, Auckland Bioengineering institute,University of Auckland, New Zealand

Equipment - ECG Machine

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INTERVIEW
GROUP 7

Ms. Aparna Sreejith

About :

MD Scholar (General Medicine)

Equipment - Heart Lung Machine

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INTERVIEW
GROUP 1

Dr. Harikrishnan

About :

MBBS TD medical college,Alappuzha
MD Trivandrum medical college
DM nephrology Thirunelveli medical college

Equipment - Dialysis Machine

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INTERVIEW
GROUP 1

Mr. Ahmed Shamil K

About :

Engineer-technical services at
Fresenius Medical Care,Chennai

Equipment - Dialysis Machine

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INTERVIEW
GROUP 6

Mrs. Jessy Jophy

About :

Post Nursing tutor currently working in school of nursing
St. James hospital chalaludy

Experience - 12 years of clinical and 6 years of teaching.
Equipment - Ventilator

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Professionals Agreed to Join Biomed 360

Inorder to make the campaign more unique and to bring out the best results,we approached many professionals having work experience to share their views on equipments.The following are the list of professionals working with us in each group sharing their knowledge and resources with us to add more colors to this initiative.

Group 1- Dialysis Machine

1. Name : Mr Ahmed Shamil K
   Designation : Technical Service Engineer

2. Name : Dr Harikrishnan
   Designation : Consultant -DM Nephrology

3. Name : Ms Ramshila AR
   Designation : Dialysis Technician

Group 2- MRI Machine

1. Name : Mr.Aromal
   Designation :Technician

2. Name : Ms Neha
   Designation : Biomedical Head

3. Name : Dr.Simi
   Designation : Radiologist

4. Name : Mr. Ranjith
   Designation : Service Engineer

Group 3 - Defibrillator

1. Name : Dr. Shyam

Designation: Consultant Physician

2. Name : Ms Simi
   Designation : Staff Nurse

3. Name : Mr Rahim
   Designation : Service Engineer

4. Name : Mr Vipin
   Designation: Biomedical Engineer

Group 4 - Oxygen Concentrator

1. Name : Mr Babin Cyriac
   Designation : Biomedical engineer

2. Name : Mr Ajl Anto Chalissery
   Designation : Nurse

3. Name : Mr Sinoy P K
   Designation : Manufacturer

4. Name : Mr Muhammed Shafi P
   Designation : Respiratory Therapist

Group 5 - ECG Machine

1. Name : Ms Anita Raj
   Designation : Service and Application Engineer

2. Name : Ms Ardra Viswananth
   Designation : Doctor

3. Name : Mr Ajesh Jayakumar

Designation : Technical Support Engineer

4. Name : Mr Leio A V
   Designation : Research Analyst

5. Name : Ms Greeshma varghese
   Designation : Nurse

6. Name : Mr Shaiju Teeyes
   Designation : Patient

Group 6 - Ventilator

1. Name : Mr K V padmanaban
   Designation : Pulmonologist

2. Name : Mr Akhil S Nair
   Designation : Biomedical Engineer

3. Name : Mr Vipin
   Designation : Managing Partner

4. Name : Ms Jessy Jophy
   Designation : Nursing Tutor

5. Name : Mr Sanoop Balakrishnan
   Designation : Service Engineer

Group 7 - Heart-Lung Machine

1. Name : Mr.Milan L
   Designation : Biomedical engineer

2: Name : Ms Aparana Sreejith
   Designation :Medical Superintendent

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TIMELINE

Biomed 360 started in the Month of July 2020 and has undergone various stages of team works including learning and understanding the concept and principles of equipments. The campaign is expected to be completed by year end.

MAY – JUNE : Brainstorming
JULY : Call for Volunteers and Campaign Initiation
AUGUST : Team setting and guideline confirmation
SEPTEMBER : Mentor allocation and Initial Works
OCTOBER : Understanding equipment under Mentors
NOVEMBER : Logo launch in Instagram Page
DECEMBER - FEBRUARY : Interview with professionals
MARCH 5 : video release

ANTICIPATION FROM THE IEEE EMBS GLOBAL TEAM

The team has successfully completed its first phase of campaign with our active set of volunteers and professionals from our area of network. Since the support and response, we've received is immense, we would like to expand our community to a global team for wider audience. For this we've a couple of humble requests from the IEEE EMBS team. They are as follows:

- Certificates for our leader groups, professionals, mentors and our volunteers for their active participation.
- Goodies from EMBS for our professionals and mentors as a token of appreciation for enlightening and igniting our minds on various topics
- An appreciation letter from the global team for our campaign which would add as a fuel for our further campaigns.
- Global access for interaction with international acknowledgements and professionals from across the world for networking opportunities for our embs members and volunteers
- Internship opportunities, Project funding and training support for our members and volunteers.
- And finally, Financial assistance from your global team to further proceed with our campaign's stability and providing exposure to a wider audience.

APPRAISALS

The initiative found its true meaning with the wonderful feedback from team members after the "Get to know more about the equipment" phase of the campaign.The following are the very few words from the heart of the team members.

★*"Biomed 360 Campaign is totally a different experience.Got somany new contacts in my field.Got to know more about the equipments.It's really good" -* ***Linda***

★*"Campaign was really a good platform. Got good contacts and a peer group. It's informative and a good opportunity to learn and interact" -* ***Hitha***

★*"I am not the same person who joined this campaign.I have gained a bit more knowledge in various equipments and also I have gained many new friends which I consider as something really precious. Confidence to speak out is what I feel has really been an advantage and this would really help me in the long run" -* ***Swetha***

★*"Campaign is really good and I have learnt and done so many new things and still learning. Great team work and awesome mentors.All are supportive" -* ***Shanty***

★*"When I joined the campaign I didn't have much idea what this is upto.I became a part with the thought that as a biomedical student I can get to know about some equipments.But now what, this campaign gave me a different experience. I have done many things that I might not have done without this Campaign.Thanks for giving such a wonderful platform" -* ***Aghna***

★*"I am happy to be part of this campaign because I get to know more about equipment so far and truly speaking I was able to build my computer skills like video making , word files etc , Still on learning a lot from this campaign.Most happy to have some contacts among the members in biomedical field" -* ***Agnus***

★*"Campaign is so great. I have never been a part of any campaign before. So, for me this is a different experience. And thank you so much for giving this opportunity" -* ***Jeny***

★*"Yeah...Really the campaign seems to be really a big opportunity for all of us to interact with and to share different perspective on a single topic in different fields.I felt really good and happy that I am a part of this campaign.I have learnt and improved some of my skills through different activities here.Looking forward to do more with this great team" -* ***Rosemol***

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★*"This campaign is a great opportunity to learn about a device in depth. This campaign helped in making new connections, getting information from professionals, team work, etc are working pretty well.I didn't know that it will be such an informative thing when i joined .It will be very helpful to embrace our careers" -* ***Amrith***

★*"Getting to know about biomedical equipments from mentors is the most interesting thing about this campaign and getting in connection with biomedical professionals is the next best part.Creative tasks and interaction with new friends help to develop and improve the skills within giving more confidence to go ahead " -* ***Greeshma***

★*"Really this is great,because with this we could learn new things,we can interact with others.Without this campaign I wound not be knowing about these many things in my Field.All the works done for the campaign is giving us exposure to the field.I understood the importance of team work from here" -* ***Ann***

★*"To be frank I had least expectations about this campaign when i joined the group.But the way things work here made me realise that this group can bring a change to the view of common people about equipments.The event is well organised and the hierarchical work distribution everything is well implemented as planned though it is taking time.The comfortable atmosphere for people to work taking the individual time is appreciable.With improved team spirit and better execution I am sure we as a team can take this campaign to the next level.Thankyou for the contacts and mentors given from here so far.I am also thankful to everyone in the team for that constant push given to us, to complete the works ,which we all need in this lazy quarantine schedule.Happy volunteering" -* ***Ajeena***

Presented By
Ms Jiby Krishna KG
IEEE Volunteer