

Department of Biomedical Engineering  
KPR Institute of Engineering and Technology



# KPR Institute of Engineering and Technology

Arasur, Coimbatore - 641407

www.kpriet.ac.in T: 0422-2635600

"We are Engineers for Doctors"

Biomedical Engineering is one of the premier Engineering disciplines among technocrats since it merges Healthcare Technology with Electronics and Software technologies including Artificial Intelligence, Machine Learning, Robotics in Medicine, Bioinformatics, Prosthetic Engineering etc. to serve better to the human community with advance and continuously upgrading technologies. In KPRIET, we nourish our students with advance laboratories like Bio-signal processing, Diagnostics and Therapeutic Equipment, Human Anatomy and Physiology, Biomedical Instrumentation to learn by practicing. Hospital training and internship are arranged with leading multispecialty hospitals and biomedical industries to facilitate the students for better career. Research activities are vibrant with publications and patents in the recent trends.

**Dr. D. Ganesh kumar HoD/BME**

## Highlights of this month

**Event -1  
Guest lecture**

**Event -2  
Webinar**

**Event - 3  
Webinar**

**Students' achievements**

**Faculty Contribution**

**Monthly Newsletter: Department of Biomedical Engineering**

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## About KPRIET

KPR Institute of Engineering and Technology (KPRIET), founded by Dr. K. P. Ramasamy, is one of the leading institutions of academic excellence by imparting technical, intellectual and professional skills to students. The Institution is ranked 100-150 band by NIRF. The institute, with its diverse and energetic community of students offers a distinguishing blend of some of the premium graduate, undergraduate and research programs, talented faculty, world class amenities and a residential campus set on a sprawling 150 acres of lush green campus.

While students at KPRIET immerse themselves in academics, the institute has a lot in store for them outside the classroom. Student life includes participation in sports, co-curricular activities and cultural. In short, at KPRIET, students will find an academic and social environment where everyone- from faculty members to peer's support shape their future. KPRIET is a home to artistically designed buildings with state of the-art computer and internet facilities, modern workshops, seminar halls, auditoriums and well stocked libraries, sports and games fields in addition to an indoor badminton court and gymnasium.

KPRIET has a faculty strength of 264 with a faculty student ratio of 1:16. Out of the total, 139 faculty members PhDs. and 95 are in the process of completing their PhDs. As an exemplary institution of learning, KPRIET follows an admission policy that strongly favours merit, even as it enables access to education for students from all strata of society through appropriate scholarships. The Institution boasts of a strong alumni network with alumni events held every year serving as a platform for past students to give back to KPRIET and share their experiences with its present fellow students.

## About the Department

The Department of Biomedical Engineering of KPR Institute of Engineering and Technology, Coimbatore was established in the year 2017 with an annual intake of 60 students. The Department has highly qualified faculty members with Ph. D. and M.E. / M. Tech / M.S. under various specialize such as Biomedical Signal and Image Processing, Medical Electronics, Healthcare Data Analytics, Biomaterials, Regenerative medicine and Nanoscience. The total strength of the faculty members in the Department is thirteen. Out of which, 60% of the faculty Members (8 Faculty) have completed their PhD and four faculty members are pursuing their PhD.

The faculty members contribute to academic development by publishing books / journals, products, patent filing and presenting papers in International and National Conferences. The Department of Biomedical Engineering signed MoUs with the reputed industries like Silicon systems, Aravind Eye Care Hospital, GEM Hospitals, Ganga Medical Center and Hospital, Masonic Medical Centre for children and ALERT (NGO) to bridge the gap between theory and field practices.

The Department also provides an opportunity for students in improving practical knowledge in the field of Biomedical Engineering and Software skills like MATLAB, LabVIEW, Wokwi simulation through Centre of Excellence, in addition to Communication and Presentation skills. The students have to undergo Industrial Training and Industrial Visit to facilitate them to take up industrial live projects to understand the industry needs. The Students from Biomedical Engineering as well as faculty members has membership in various Professional Societies like BMESI and IEEE (EMBS) to gain knowledge through various programs conducted by these bodies across the Nation.

## Vision of the Department

To be the **centre of excellence** for **dissemination of knowledge, research and development** in biomedical engineering to serve **society with moral values**.

## Mission of the Department

The **Mission** of the Department is to

- Impart **value-based education** in biomedical engineering using **modern equipment and tools**.
- Build an **integrated team** of biomedical engineers to foster technologies through **research, development and innovation**.
- Provide **healthcare industries** with solutions imbued **through lifelong learning** with **ethics and moral values**

**LIST OF EVENTS / PROGRAMS CONDUCTED DURING OCTOBER 2023**

S. No.	Date	Type of Event / Program	Title of the Event
1.	13.10.2023	Guest Lecture	Wearable devices for Elderly patients
2.	14.10.2023	Webinar	Skill development for career in IT Industry
3.	14.10.2023	Competition	Brain Strom
4.	28.10.2023	Webinar	AI-driven diagnosis: object recognition in medical image analysis

**Industry visits by the Department**

S. No.	Date of Visit	Name of the Industry visited by the faculty during October 2023
1.	11.10.2023	Philips India Ltd., Pune (Visit through Online mode)
2.	14.10.2023	Iatome Electric Pvt., India, Coimbatore
3.	14.10.2023	Globe Healthcare, Coimbatore
4.	16.10.2023	Aravind Eye Hospitals, Coimbatore

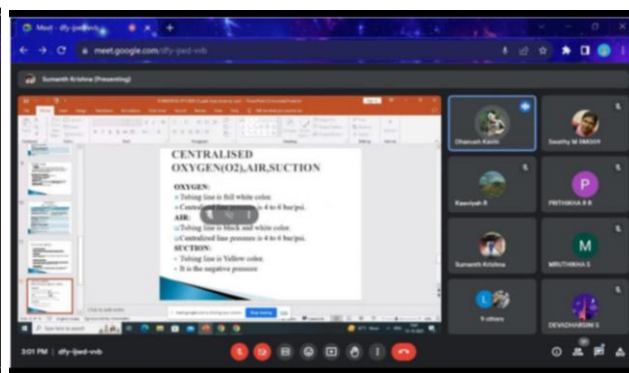
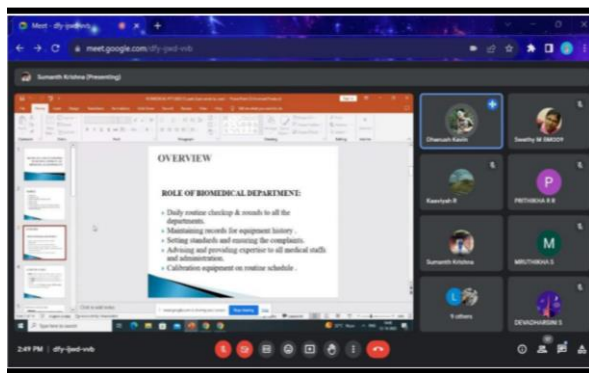
EVENT - 1

Association Activity – Guest Lecture on Wearable devices for Elderly patients

On October 13, 2023, the Association of Medico Sapiens hosted a webinar titled 'Wearable Devices for Elderly Patients' featuring Mr. Dhanasekar C as the guest speaker. The event commenced at 2:30 PM with an opening address delivered by Mruthikha S. The introduction of the esteemed Chief Guest, Mr. Dhanasekar C, was gracefully provided by Vallinayagam. Mr. Dhanasekar C then led an engaging session centered around the profound impact of wearable devices on the healthcare industry, particularly in the context of elderly patients. This discussion underscored how these devices have undergone significant transformation, offered invaluable health insights and promoted proactive health management. Question-and-answer session was thoughtfully organized to foster interaction and learning among the attendees, primarily benefiting students. The event attracted an impressive turnout, with over 120 participants actively engaging in the discussion. The session proved to be an abundant source of information and utility; a fact reflected in the positive feedback received from the participants. In appreciation of Mr. Dhanasekar C's contribution, a virtual memento was thoughtfully conveyed to him via email. The event concluded with a heartfelt vote of thanks to Chief Guest Mr. Dhanasekar C, eloquently delivered by Mruthikha S. This event exemplified the Association of Medico Sapiens' commitment to knowledge dissemination and its dedication to bringing valuable insights to its members and the broader healthcare community. The impact analysis of the event was carried out by conducting Pre & post-event Quiz and the session had impact with the overall score of the students.

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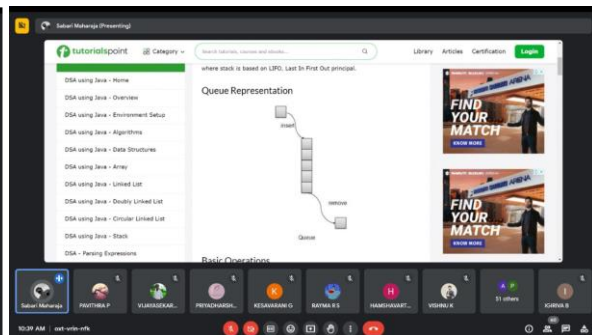
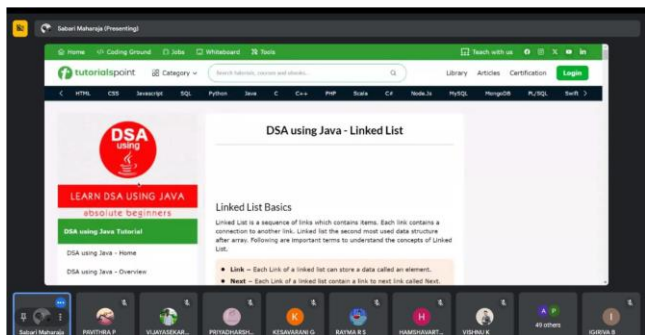
- Organizers:** KPR Institute of Engineering and Technology (Autonomous, NAAC 'A'), Department of Biomedical Engineering.
- Association:** Students Association 'Medico Sapiens 2023 - 2024'.
- Topic:** Wearable Devices for Elderly Patients. Subtext: Embracing technology to enhance eldercare.
- Guest Speaker:** C. Dhanasekar, Biomedical Incharge, Geri care hospital, Chennai.
- Registration:** Online Mode, 13.10.2023, 2.30 PM - 3.30 PM, Meeting ID: dfy-ijwd-vvb. A QR code is provided for registration.
- Event Coordinators:** Vallinayagam V (I BME), Muthikha S (II BME), Additional Secretary (III BME), Executive Member.
- Logos:** KPR Institute, G20 India 2023, and other institutional logos.
- Contact:** kpriet.ac.in, #KPRiEOnline.



EVENT - 2

Webinar - Skill development for career in IT Industry

The event on 'Skills Development for Career in the IT Industry ' by alumni was a resounding success, with a multitude of positive outcomes and takeaways for both the participants and organizers. Alumni from various renowned institutions and professionals from the IT industry came together to share their experiences, insights, and expertise, contributing to a dynamic and enriching learning environment. Empowered Participants: The event empowered participants with a deeper understanding of the evolving landscape of the IT industry. Alumni shared their career journeys, emphasizing the importance of continuous skill development and adaptability. Networking Opportunities: Attendees had the chance to network with alumni who have successfully navigated the IT industry. This led to valuable connections, potential job opportunities, and mentorship relation. Skill Enhancement: Workshops and panel discussions conducted by alumni covered a wide range of technical and soft skills relevant to IT careers. Participants gained insights into the latest technologies, programming languages, and methodologies that are in high demand in the industry. Career Guidance: Alumni offered career guidance, helping participants set clear goals and plan their career paths. This guidance included tips on resume building, interview techniques, and strategies for career advancement. Industry Trends: Alumni provided insights into the latest trends in the IT industry, such as artificial intelligence, cybersecurity, and cloud computing. Participants left with a better understanding of where the industry is heading. The event also gathered feedback from participants, which will be used to improve and tailor future events. This ensures that subsequent events will be even more beneficial to attendees.

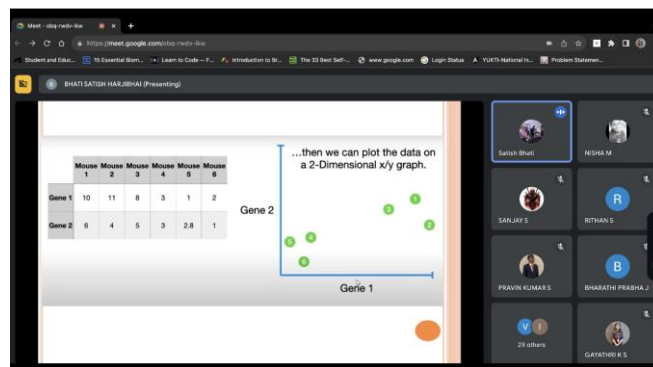
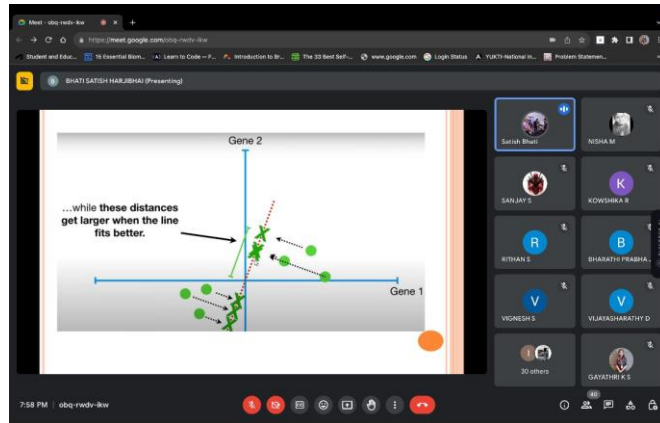




EVENT - 3

**Webinar– AI Driven Diagnosis – Object Recognition in Medical Image Analysis**

Principal Component Analysis (PCA) is a widely used technique in medical image analysis, and it plays a crucial role in various aspects of processing and interpreting medical images. PCA is commonly used to reduce the dimensionality of medical images. This is important because medical images, such as MRI or CT scans, can be high-dimensional and contain a large amount of data. PCA can help in classifying medical images into different categories or identifying disease patterns by reducing the dimensionality and highlighting distinguishing features. Medical image analysis often involves classifying images into different categories or diagnosing diseases and conditions. Decision theory aids in selecting relevant features from medical images. It helps in determining which image characteristics are most informative for making accurate diagnostic or treatment decisions. Structural methods in medical image analysis refer to a category of techniques that focus on extracting and analyzing the structural information within medical images. These methods are particularly useful for tasks involving the identification, segmentation, and quantification of anatomical structures or abnormalities in medical images. PCA can be used to reduce the dimensionality of feature vectors extracted from images, making it easier to train machine learning models for disease classification. Decision theory can be applied to set decision thresholds for classification tasks. For example, determining the cutoff value for a diagnostic test based on the extracted features.





### Students' Achievements – Technical / Non-Technical/Sports

S. No.	Name of the Student	Year	Name of the Event / Program	Achievement
1.	Mr. V. A. JAGADISH PRABU	II	“ELEMENTS 2K23” National-level Competition	FIRST PRIZE
2.	Mr. K. GOWTHAM	III	“POWERLIFTING” State-level Competition	SHIELD
3.	Mr. R. IMMANUVEL JASPER & Mr. B. MUTHURAJ	III	QUIZ COMPETITION	SECOND PRIZE [CASH PRIZE - RS.500/-]
4.	Mr. S. SAALIH SULTHAN & TEAM	III	ANNA UNIVERSITY ZONE IX FOOTBALL TOURNAMENT	WINNERS
5.	Mr. K. KALIRAJ KUMAR	III	GENESIS'23	FIRST PRIZE [CASH PRIZE - RS.750/-]
6.	Ms. V. LITHYASHREE & TEAM	III	ANNA UNIVERSITY ZONE IX VOLLEYBALL TOURNAMENT	WINNERS

### Faculty Contribution

S. No.	Name of the Faculty member	Contribution details
1.	Dr. P. Arunkumar, AP(Sr.G)/BM	Completed NITTTR Module 2,3,4
2.	Ms. M. Swathy, AP(Sr.G)/BM	Completed NITTTR Module 7
3.	Mr. John Amose, AP(Sr.G)/BM	Completed NITTTR Module E 3,4
		Paper published in Scopus Journal
4.	Mr. R Krishna Kumar, AP/BM	Completed NITTTR Module 2,3,4
		Completed Great learning Course titled “Machine Learning Algorithms”
5.	Ms. B. PriyaDarshini, AP/BM	Completed NITTTR Module 3



**JAGADISH PRABU V A – “ELEMENTS 2K23”**  
National-level Competition - First Prize



**GOWTHAM K – “POWERLIFTING”**  
State-level Competition - Shield



**IMMANUVEL JASPER R, MUTHURAJ B, - “QUIZ COMPETITION”**– Second Prize [Cash prize - Rs.500/-]



**SAALIH SULTHAN & TEAM – “ANNA UNIVERSITY ZONE IX FOOTBALL TOURNAMENT”** – Winners



**KALIRAJ KUMAR K – “GENESIS’23”** First Prize [Cash prize - Rs.750/-]



**LITHYASHREE V & TEAM – “ANNA UNIVERSITY ZONE IX VOLLEYBALL TOURNAMENT”** – Winners