



## Department of BIOMEDICAL ENGINEERING

**B.Sc. Medical IoT and  
Data Analytics**

### ▲ About Us

Biomedical Engineering is a multidisciplinary field that blends biology and engineering. This discipline encompasses the profound knowledge of biological principles in the realm of engineering design. The Department of Biomedical Engineering was established in the year 2009 and has maintained an exceptional track record in academics, placement, industrial training and research activities.

### ▲ Programs Offered

- **B. Tech.** Biomedical Engineering
- **M.Tech.** Biomedical Instrumentation
- **Ph.D.** Biomedical Engineering
- **B.Sc.** Medical IoT and Data Analytics

Medical IoT and Data Analytics supports personalized healthcare systems in delivering e-health services to fulfil the medical and assistive needs of the community. Internet of Things (IoT) is a significant advancement in the Big Data era, which supports many real-time applications in healthcare. The Internet of Things (IoT) is a network of physical devices embedded with electronics, software and sensors that enables these objects to collect and exchange all types of data including medical data. The convergence of medicine and information technologies, such as medical informatics transforms the healthcare industries by curbing costs and reducing inefficiencies that lead to loss of lives.

Data Analytics deals with study of analytical tools and techniques, SQL databases, languages of R and Python, creation of data visualizations, application of statistics and predictive analytics in all environments. Analytics over data streams from IoT is a potential source of user data for the healthcare systems to discover new information, predict early detection and make decisions for the improvement of the quality of life.

The Medical IoT (MIoT) and Data Analytics Program will train the students on various subjects including sensor networks, embedded technologies, data management, data analytics, microcontrollers, communication protocols, advanced IoT tools and cloud computing, thus significantly improving their employment prospects.



### ▲ Employability

- Students with a MIoT Degree can benefit from a vast range of opportunities in industries related to Smart healthcare, Smart Cities, Telecommunication, Data analytics, Wireless technology, Consultancies and much more.

#### Some of the significant career prospects include:

- AI Data Analyst
- Big data architects in sectors such as Medical Industry, Telecommunications
- IoT Enterprise Architects
- IoT Security Specialists
- IoT Product Portfolio Managers
- IoT Software Developers
- IoT Systems Developers
- Graduates may also pursue a Postgraduate Program for further specialisation

With a dedicated placement cell on campus the students will have ample opportunities to appear for in-campus placements.

### ▲ Laboratory Facilities

- Programming Lab
- Medical IoT Lab
- Medical Electronics Lab
- Embedded Lab
- Innovation and Project Lab
- Biomedical Instrumentation Lab
- Medical Image Processing lab

### ▲ Value Added Courses Offered

Hands-on Sessions/ Practical Trainings are given to students to impart practical skills required by the Industry

- Embedded Systems
- Machine learning
- Python Programming
- C, C++, Embedded C
- R Programming
- PCB Design and Fabrication for Biomedical applications
- Arduino, Raspberry Pi
- Biovision Medical Device Calibration & Maintenance Lab
- 3D Printing for Medical Applications
- Schiller-Medical Equipment & Troubleshooting Lab

### ▲ Tie-up with Industries / Hospitals

The Department of Biomedical Engineering has active collaborations with the following Industries:

- Boston Children's Hospital, USA
- Siemens Healthineers, Bangalore
- Vital Biosystems Pvt. Ltd, Chennai
- Jubilee Mission Medical College and Research Institute, Thrissur
- STAAN Bio-Med Pvt Ltd, Coimbatore
- Jasmin InfoTech, Chennai
- Karunya Rural Community Hospital, Coimbatore
- TMI Systems, Bangalore
- Helix Medical Systems, Bangalore
- BRJ Ortho Centre and Mak Hospital, Coimbatore

### ▲ Research Activities

#### Thrust Areas in Research:

- Wearable Healthcare Devices for Children & Elderly
- Biosignal Processing
- Medical Image Processing
- Handheld Medical Equipment
- Medical Diagnostics & Therapeutics
- Neuroscience & Technology
- Rehabilitation & Assistive Devices

#### Sponsored Projects, Publication and Patents:

The Department has funded projects from various agencies such as Boston Children Hospital, Boston, USA, ICMR, DST, Jasmin Infotech to the tune of Rs. 55 Lakhs. The Department has to its credits 100 Scopus Indexed publications and 10 Patents.

### ▲ Eligibility

A pass in H.Sc. (10 + 2) or equivalent with a minimum of 50% aggregate in MPC / PCB / PCCs from a recognized Board (M – Mathematics, P – Physics, C – Chemistry, CS – Computer Science).

Contact:

#### The Head of Department

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