BMSCE VISION

Promoting Prosperity of mankind by augmenting Human Resource Capital through Quality Technical Education & Training.

BMSCE MISSION

Accomplish Excellence in the field of Technical Education through Education, Research and Service needs of society.

DEPARTMENT VISION

To promote quality education in Medical Electronics Engineering for Health and well-being of humankind through teaching and research platforms.

DEPARTMENT MISSION

- To impart knowledge and skills necessary for professional development of graduates in Medical Electronics Engineering.
- To provide continuous up-gradation of technical education with strong academic progression.
- To propagate creativity, responsibility, commitment and leadership qualities and exhibit professional ethics and values.

DEPARTMENT OF MEDICAL ELECTRONICS ENGINEERING

B.M.S. College of Engineering (BMSCE) Bengaluru has the unique distinction of being the first private engineering college established in the country. Established in the year 1946, the institution owes its existence to the vision of its beloved founders, Late Sri. B.M.Sreenivasaiah and his illustrious son Late Sri. B. S. Narayan. Over the past 76 years, BMSCE has produced more than 40,000 graduates who have enriched the world through their immense contributions as engineers or leaders for mankind. The College offers 17 Undergraduate & 15 Postgraduate courses both in conventional and emerging areas. The Institution is approved by the All India Council for Technical Education (AICTE) and is permanently affiliated to Visvesvaraya Technological University (VTU), Belagavi. The College is accredited by the National Assessment and Accreditation Council (NAAC) with the highest grade of A++ in the Second Cycle. The College became autonomous (UGC approved) in 2008 and has been effectively practicing Outcomes-based Education. The college is recognized as the center for AICTE Doctoral Fellowship Scheme (ADF) and QIP. The Institution became the proud beneficiary of TEQIP Phase III owing to its excellent performance ratings in the previous two phases among very few colleges in the entire country. BMSCE is the only Partner institution in the country of the Melton Foundation, the USA which promotes cross-cultural learning for the selected students along with peers from five other countries.

The college established the Medical Electronics Engineering in 1992, to expand its horizon to the fast-growing field of healthcare technologies. The department has laid its focus to impart education in the field of medical electronics and health sciences to translate it into real-world applications. The department offers B.E. in Medical Electronics Engineering & M.Tech programme in Biomedical Signal Processing & Instrumentation. The department has well-qualified and experienced faculty who are actively involved in teaching and research.

ABOUT

Department Of Medical Electronics Engineering

The department has experienced and well-qualified faculty (90% doctorates), with an average experience of 25 years. The department has been able to contribute a large pool of talented biomedical engineers to the industry. The current intake for the undergraduate programme is sixty, and the department is also offering an M.Tech programme in Biomedical Signal Processing and Instrumentation since 2013 with an intake of 18.

Currently, there are 7 research supervisors who are guiding students in several areas of Biomedical and Electronics engineering.
With the belief that collaboration is everything, the department has networked with premier research institutes like Stanford University, Oxford University, Maastricht University, Ohio State University, University of Arkansas, Texas A&M University, NIMHANS, Indian Institute of Science, Narayana Nethralaya, Kempegowda Institute of Medical Sciences and many more. This has resulted in joint academic and research activities.

The department is proactively enagaged in innovation in the field of healthcare and supporting several product development activity. It is striving for excellence with the objective of creating a forum for industry, institutions, and hospitals to work together for developing affordable innovative healthcare solutions, also encouraging faculty/student research-driven entrepreneurial steps.

Faculty Details

DR. MANISHA JOSHI S

Designation: Professor & Head
Qualification: Ph. D
Areas Of Interests: Medical Image Processing, Biomedical Instrumentation, Embedded systems design, Machine learning, Medical Imaging

DR. H. N. SUMA

Designation: Professor
Qualification: Ph. D
Areas Of Interests: Pattern recognition, Brain mapping, Neural networks, Expert systems Medical Device Development

DR. S.B. BHANU PRASHANTH

Designation: Professor
Qualification: Ph. D
Areas Of Interests: Amorphous Semiconductors, Biomedical Instrumentation, Optical Fiber Communication, Sensors and Body Area Networks.

Dr. VIJAYALAKSHMI K

Designation: Professor
Qualification: Ph. D
Areas Of Interests: Biomedical Signal Processing, Design and Development of Biomedical Instrument

DR. SUMA M S

Designation: Professor
Qualification: Ph. D
Areas Of Interests: VLSI Design Tool Technology, Integrated Electronics & Circuits, Micro Electronics, Biomedical Circuits with VLSI, SoC for Biomedical Applications

DR. ABHISHEK APPAJI M

Designation: Associate Professor
Qualification: Ph. D
Areas Of Interests: Medical Image Processing, Medical Device Development, Medical Signal Processing, Biostatistics

DR. BEENA ULLALA MATA B N

Designation: Associate Professor
Qualification: PhD
Areas Of Interests: Signal and Image processing, Medical Imaging, Biomedical Instrumentation, Machine Learning, Development of IoT based Health Care Medical Devices.

DR. NIRANJAN K R

Designation: Assistant Professor
Qualification: Ph.D
Areas Of Interests: Neural Network, VLSI, Embedded System

DR. R. KALPANA

Designation: Associate Professor
Qualification: Ph. D
Areas Of Interests: Biomedical Signal Processing, Biomedical Instrumentation, Machine Learning, Communication Systems, Medical Imaging

DR. JISHA P

Designation: Assistant Professor
Qualification: Ph. D
Areas Of Interests: Biosensors and IoT based Health care Devices, Sensor design and Fabrication

SIRASAPPA. Y. PATTAR

Designation: Associate Professor
Qualification: M.Tech (Ph. D)
Areas Of Interests: Image and Signal Processing

FACULTY DETAILS

Programme Specific Domains

BIOMEDICAL SIGNAL PROCESSING

MEDICAL IMAGE PROCESSING & AI

BIOMEDICAL INSTRUMENTATION

BIOMATERIAL AND SENSORS

Research Grants

Biomedical Signal Processing

- Industry Experience R&D Programme to Enhance Learning and build capacity in Medical Technology, Turtle Shell Technologies — **2022**
  Dr. ABHISHEK APPAJI | Rs. 60Lakhs | Turtle Shell Technologies
- Infrastructure Enhancement of Biomedical Wireless Data Acquisition Facilities in Biomedical Signal Processing Lab — **2016**
  Dr. H. N. SUMA & Dr. K. VIJAYALAKSHMI | Rs. 20Lakhs | VGST

Medical Image Processing & AI

- Development of Application for Beauty and Cosmesis — **2022**
  Dr. ABHISHEK APPAJI | Rs. 3.5 Lakhs | Aayu Healthcare
- Are retinal vascular abnormalities endophenotype in Schizophrenia: An examination in first degree relatives — **2021**
  Dr. H N SUMA & Dr. ABHISHEK APPAJI | Rs. 32.4 Lakhs | DST
- Recurrent Neural Network based Sentiment Analysis Approach to Diagnose Mental Disorders using Scanned Patient's Diary Images — **2019**
  Dr. ABHISHEK APPAJI | Rs. 2 Lakhs | VTU TEQIP
- Non – Invasive Imaging Tool for Ayurvedic Tongue Diagnosis — **2017**
  Dr. S B. BHANU PRASHANTH & RICHA MISHRA | Rs. 20.22 Lakhs | DST WOSA
- Intelligent System for the Assessment of Diabetic foot and Varicose vein Complications Using Thermography — **2017**
  Dr. MANISHA JOSHI S | Rs. 1.7 Lakhs | King Saudi Arabia – Majmaah University

RESEARCH GRANTS

Research Grants

Biomedical Instrumentation

Affordable Portable Medical Kit for Road Traffic Emergencies and Trauma . **2019**
Dr. H N Suma & Dr. Abhishek Appaji | Rs. 49.81 Lakhs | DBT BIG

Device for Intrapartum Materno-fetal care **2016**
Dr. Abhishek Appaji & Vichal P M | Rs. 15 Lakhs | BIRAC SRISTI

Development of Low Cost, Safe High Resolution easy to use Digital X-Ray **2016**
Dr. H. N Suma & Dr. Abhishek Appaji | Rs. 59.34 Lakhs | DST

Biomaterials and Sensors

Development of Polymer Nanocomposite based Rapid Malaria Sensing Device **2022**
Dr. M.S Suma & Dr. Jisha P | Rs. 30 Lakhs | SERB

Consultancy Projects

Smart Eye Kiosk for Community (SEK-C): Smart fully automated ophthalmic camera for community eye screening **2016-19**
Dr. Abhishek Appaji & Dr. H. N. Suma | Rs. 32.3 Lakhs | TTSH, Singapore

Patents

Granted

A Heart sink for rapid Heat Dissipation
Dr. Suma M S

Method for detection of retinopathy of prematurity (ROP) and tool therefrom.
Dr. Manisha Joshi S

PUBLISHED

An Interposer
Dr. Suma M S,
Chandrasekhar Patil

A Portable Device for Detecting Malaria
Dr. .Suma M S,
Dr .Murugendrappa,
Dr. Kalyanraj, Dr. Jisha P

Image processing component and Apparatus for identification of Strabismus condition in Eye
Dr.. MANISHA JOSHI S,
Dr. H N Suma

Digital X-Ray device and a method thereof.
Dr. Abhishek Appaji,
Dr. Suma H N

A thermal collection network (TCN) for the thermal solutions for 2-D/2.5D/3D IC structures
Dr. Suma M S,
Chandrashekar Patil

PATENTS

Recent Placements and Higher studies

Item	2017-21	2016-20	2015-19	2014-18
Total number of final year students	26	21	24	19
Number of students placed	18	16	15	14
Number of students admitted to higher studies	6	5	9	5
Number of students turned entrepreneur	2	-	-	-
Total = placed+Higher studies+entrepreneur	26	21	24	19

Recent Achievements

Faculty

- 4 Faculty awarded with Ph.D
- 2 Patents Granted
- 4 Patents published
- 2 Books and 2 Book chapters published
- 57 Invited talks delivered by faculty
- 4 External ongoing projects
- 85 Web of Science Publications
- 78 Scopus Publications

Students

- External Funding= 7 (Rs.47.42 Lakhs)
- ELEVATE 100 – 2019 Winners
- Entrepreneurs: UG 3 and PG 1
- Hackathon Winners – 2 Teams
- Indian Raga Fellowship
- Young Photographer of the Year Award
- Gold Medal in National NCC Camp

LAB FACILITIES

DOZEE Sponsored Research Lab

Biomedical Instrumentation Lab

Signal/Image Processing & AI Lab

Digital Electronics Lab

Analog Electronics Lab

Project Lab

Department at a Glance

- Started B.E. in Medical Electronics in 1992 (30 intake)
- Started M.Tech in Biomedical Signal Processing and Instrumentation in 2013 (18 intake)
- Enhanced UG Intake to 60 in the year 2018
- Cumulative Research Project funding of Rs. 3Crore+
- 2 Patents Granted and 5 Patents Published
- 2 Industry Sponsored Labs
- 11 Faculty members with 10 doctorates (90%)
- Well established Infrastructure in Biomedical Signal/Image Processing, Instrumentation, etc
- Strong Alumni connections and Industry collaborations
- Well-established alliance with Hospitals and Doctors
- Foreign University Collaboration for research and teaching
- Fostering Entrepreneurship and research among students
- Excellent Placement & Higher studies
- 5 PhDs awarded and 12 Pursuing under 7 research supervisors

For more details contact hod.ml@bmsce.ac.in

Visit: https://bmsce.ac.in/home/Medical-Electronics-Engineering-About

LABORATORY FACILITIES & DEPT @ A GLANCE