



VISION OF THE INSTITUTE

Vision of Erode Sengunthar Engineering College is to become a World Class Technical Institution and Scientific Research Centre for the Benefit of the Society

MISSION OF THE INSTITUTE

IM1:	Create Positive difference to Society through Innovative Teaching – Learning Process.
IM2:	Impart Value Based Technical Education to the Students from across various Socio Economic backgrounds.
IM3:	Build state of art infrastructure for high quality research and development capabilities on par with the finest in the Globe and widen student's horizons beyond Class Room.
IM4:	Bring out Competent, Ethically Strong and Quality Professionals.

QUALITY POLICY

Erode Sengunthar Engineering College is committed to impart World Class Technical Know – How to the Students from diverse Socio Economic backgrounds and to transform their lives by nurturing Multi – Skills and facilitating them to develop holistically.

VISION OF THE DEPARTMENT

To provide technical education and establish a leading platform in the field of Biomedical Engineering, driven by student excellence, innovative programs, impactful research and industry-oriented teaching and training, ensuring quality healthcare delivery and education there by contributing to the prosperity of the nation.



ERODE SENGUNTHAR ENGINEERING COLLEGE

(AUTONOMOUS) Perundurai, Erode - 638 057

2023-2024

DEPARTMENT OF BIOMEDICAL ENGINEERING

ACADEMIC BROCHURE



MISSION OF THE DEPARTMENT

- Dm1:** To catalyze interactions between biologists, physical scientists and engineers to benefit medicine and human health.
- Dm2:** To impart students with skills for research, design and development of biomedical devices and allied integrated systems for betterment of human society.
- Dm3:** To achieve academic distinction in applying engineering principles, science and medicine methods to confront health science challenges and research.
- Dm4:** To enable students to be sensitive to the ethical issues pertinent to the biomedical engineering profession.

DEPARTMENT OF BIOMEDICAL ENGINEERING

PROGRAM EDUCATIONAL OBJECTIVES

PEO I: Preparation: To apply and acquire quantitative, qualitative, analytic and critical thinking skills to solve engineering problems for successful career.

PEO II: Core Competence and Professionalism: To instill contemporary knowledge, professional excellence and competencies in biomedical engineering and its diverse specializations along with related fields.

PEO III: Breadth: To provide multidisciplinary knowledge with management principles to identify and create professional opportunities in the field of biomedical research and innovation.

PEO IV: Learning Environment: To prepare graduates to work effectively as individuals and as team members in multidisciplinary projects through lifelong learning by upholding ethical standards to meet professional and societal needs.

PROGRAM SPECIFIC OUTCOMES

Healthcare Integration: Apply interdisciplinary skills to integrate advanced technologies in medical imaging, signal processing and biosensors for effective diagnosis, monitoring and treatment.

Biomedical Innovation: Design and develop biomedical devices that resolves the current societal healthcare problems by applying the concepts of Life sciences, Engineering and Technology.

Innovations through ICT: To adapt to emerging information and communication technologies (ICT) to innovate ideas and solutions for current societal and scientific issues thereby developing indigenous medical instruments that are on par with the existing technology.

PROGRAM OUTCOMES

PO 1	Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO 6	The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO 7	Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and Team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	Life-long Learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

B.E.

BIOMEDICAL ENGINEERING

2023-24

LABORATORY FACILITIES

- Biochemistry Laboratory
- Human Physiology Laboratory
- Pathology & Microbiology Laboratory
- Biomedical Instrumentation Laboratory
- Diagnostic & Therapeutic Equipments Laboratory
- Bio Signal Processing Laboratory
- Medical Image Processing Laboratory



FEATURES

- The Department of Biomedical Engineering was established in the year 2018 at Erode Sengunthar Engineering College.
- The Department has full furnished infrastructure, Well-equipped modern laboratories and experienced Faculty members.
- Industrial, Hospital and Core biomedical company visits to improve the student's knowledge.
- Valued Added Course are conducted to the students for better placement opportunities.
- In plant training was given to the students as an additional qualification for our students.
- Internships with stipend are arranged to students to improve their technical skills and knowledge in the field of Biomedical Engineering.

COMPUTING FACILITY

Computer Centre is equipped with total number of 36 Computer Systems with high end latest Configuration. The software accessible includes MATLAB Ver.7.8 Rel.2013a (50 Users License), MATLAB Ver. 6.5 - Rel.13 with 12 Toolboxes, Xilinx, Cadence Design Suite and ORCAD (15 Users License).



HOSPITAL TRAINING

- Sri Ramachandra University and Hospital, Chennai
- Coimbatore Medical College - [CMC], Coimbatore
- IRT Perundurai Medical College, Perundurai
- Royal Care Super Speciality Hospital, Coimbatore
- Erode Cancer Centre – Erode
- Sudha Hospital, Erode
- Lotus Hospital - Erode - Hi Tech Super Speciality Hospital
- Hindustan Hospital, Coimbatore
- Senthil Multi-Speciality Hospital, Erode

BEST PRACTICES FOLLOWED

- The interactive learning is exposed through classroom teaching based upon one-to-one interaction with the faculty
- Analogy based teaching methodologies
- Video lectures by experts on problem oriented subjects to ease the learning process
- Case Analysis / Applied Problems Solving
- Project based Learning
- Field visit to industries make the students to learn recent technologies & Industry culture
- Real time projects lead the students for lively learning experience
- Internship opportunities to impart practical learning experience to the students

VALUE ADDED COURSES

- PCB Designing
- Embedded Programming
- LabVIEW Core-I & Core-II
- Medical Robotics
- 3D Simulation and Printing
- Artificial Intelligence
- Bio - Sensors and Transducers
- Matlab Hands-on



CENTRE OF EXCELLENCE



MOU's WITH FOLLOWING INDUSTRIES

