DEPARTMENT OF BIOMEDICAL ENGINEERING

ABOUT BIOMEDICAL ENGINEEERING

Biomedical engineering integrates engineering science with medical science for knowledge advancement and development of new applications with the amalgamation of engineering, biology and medicine.

From the Desk of HOD

Welcome to the website of the Department of Biomedical Engineering. This department is not only one of the oldest departments of JISCE, Kalyani but also it is a unique department which has been offering highly interdisciplinary subject like Biomedical Engineering in B. Tech. programme (UG) with intake capacity 30 since 2003. In 2007, the intake capacity has been increased to 60 by AICTE. The UG programme has been accredited by National Board of Accreditation in the year 2010. The college received Autonomy from UGC in 2011. As autonomous department BME has included experts from Industry and premier academic institute in its Board of Studies.

The subject has expanded steadily with time and to accommodate this expansion in the learner centric teaching – learning environment. In 2013, Department of Biomedical Engineering

proposed a revised “Programme Outcome” based curriculum for the UG course to meet the recent need of BME industry and to encompass the wide spectrum of interdisciplinary Biomedical Engineering domain.

The greatest asset of the department is its highly educated, and experienced faculty members. The department is very actively pursuing research in diverse fields of BME world ranging from Biomedical instrumentation, Bio-signal processing, Biomaterials, Image processing, Artificial organ, and many more. Faculty members have International Journal Research publications as well as Book Chapters in their respective domain of research.

Since inception, the department has produced many brilliant students who in due course of time have established themselves as eminent teachers, researchers and industry expert in various academic institutions, universities and industry across the globe. Many alumni of the department have been recognized nationally and internationally for their contribution in the advancement of Biomedical Engineering.

Dr. Karabi Ganguly
Head of the Department
Dept. of Biomedical Engineering
JIS College of Engineering

VISION

Pioneering excellence in Biomedical engineering education and research in undergraduate and post graduate level, nationally and internationally to provide society with world-class competitive professional in Biomedical Engineering.

MISSION

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

PROGRAMME (B. TECH IN BIOMEDICAL ENGINEERING) EDUCATIONAL OBJECTIVE (PEOS):-

- To prepare students for diverse career in engineering and science including human body systems that build career and pursue higher studies in Biomedical Engineering.
- To identify, analyze and solve the problems by applying principles of Biomedical engineering with novelty and updated knowledge in the development of product/process/technique related to healthcare to meet the societal demands.
- To develop skills necessary for communications in their professions and to impart value added continuing education for sustained growth beneficial for society.
- To apply the acquired practical knowledge for effective teaching, research, development and entrepreneurship in biomedical field.
- To provide opportunity for students to work as part of teams on multidisciplinary projects with the multifaceted aspects of using modern tools.

THE PROGRAM OUTCOMES (BIOMEDICAL ENGINEERING)

1. Ability to define/list/give example/ comprehend/explain concepts of Biomedical Engineering
2. Ability to **apply knowledge** of mathematics, science and engineering fundamentals to solve the problems related to Biomedical Engineering.
3. Ability to **perform logical analysis** of results/ systems/ sub-systems of Biomedical Engineering to arrive at suitable conclusions.
4. Ability to design solutions for systems/ subsystems that meet desired specifications of healthcare engineering
5. Ability to research literature to **conduct investigations/ evaluate results/ interpret results** to arrive at the most effective solution for solving problems Biomedical Engineering
6. Ability to design and conduct experiments using electronic components, biomedical instruments and/or **modern engineering tools** to demonstrate concepts in Biomedical Engineering
7. Ability to understand the **sustainability** of Biomedical Engineering solutions and its impact on health, safety, cultural issues, **environment and society**
8. Ability to conform to **professional ethics**, and understand the responsibilities and norms of Biomedical Engineering practice
9. Ability to function effectively as an **individua**l, and as a member **in a team**
10. Ability to **communicate effectively**, write reports and make effective presentation using available technology
11. Ability to apply the knowledge and understanding of **project management**, Biomedical Engineering resource management and **cost analysis** while implementing projects
12. Ability to **engage in independent** self-study to enhance knowledge

PROGRAM SPECIFIC OUTCOMES (PSOs):

After completion, students will able to

- **PSO1:** Identify, analyze and solve the real life problems by applying principles of Biomedical engineering with novelty.
- **PSO2:** Design, develop and specify the mathematical model to understand the inter-relation among various Physiological systems.
- **PSO3:** Investigate, implement and demonstrate various applications of engineering and physiological subsystems in designing and developing human body systems.