

Department of Bioengineering

The department of Bioengineering has been working in the area of cardiovascular physiology, in collaboration with the department of Physiology and the department of Cardiology. In this collaboration, the contribution of Bioengineering has been in the development of analytical models to interpret electrophysiological and mechanophysiological data, design of measurement instruments, algorithms for analysis, etc.



The development of a 3D cardiac vector calculator from ECG data, a 3D heart vector simulator with ECG lead calculations, and an invasive blood pressure measurement model are some of the analytical models developed in Bioengineering.

Instrumentation, embedded hardware and software, for blood pressure measurement are some of the electronic and digital devices developed in Bioengineering.

A major research area in Bioengineering is in the use of Functional Electrical Stimulation for exercise and mobility of persons with paraplegia, the use of Robotic Assistance for imparting therapy to patients with motor deficit following cerebrovascular stroke and game based therapy for rehabilitative therapy for movement, vestibular stability and balance. Other research includes instrumentation for monitoring nerve path integrity using field-usable nerve conduction tests, etc.

The department of Bioengineering has postgraduate students working towards an MS-Bioengineering, and also in a joint program with IIT-Madras and SCTIMST-Tvm, towards M.Tech. Clinical Engineering and Ph.D. Biomedical Devices. These students undertake research projects with various departments like Cardiology, Physiology, Physical Medicine, Neurological Sciences, Pathology, Surgery and Orthopaedics.

