

Module Synopsis

PDC1

Anatomy and Physiology (AP)

This module introduces the basic structure and function of the human body. The gross anatomy and physiological processes of major organs is taught in order to enable students to correlate structure with function. This module will cover the functional aspects and the various vivo signals generated from skeletal & muscular, cardiovascular, nervous, respiratory and urinary systems. Heat generation in human body system also covered.

Introduction to Biomedical Engineering (IBE)

This module introduces the students an overall view of the Biomedical Engineering discipline. It covers basic concepts of biomedical engineering and their connection with the spectrum of human activity. Various physiological systems and related medical technologies will be introduced. Emerging trend in medical technology and data analytics in healthcare are discussed. Students also learn the types of medical device classes and the various safety regulations and standards.

PDC2

Biomedical Instrumentation (BI)

Electronic and mechanical aspects in design and operation of various medical equipment are discussed here. The emphasis will be on study of electronic parts of most common equipment such as EEG, ECG and EMG. The application and fundamentals about equipment in different clinical specialities will be introduced. The students will learn the fundamentals of flow measurement, control and monitoring in conjunction with cardiovascular system. Embedded controller based Medical Instrument and IoT in healthcare industry will be introduced. This module also includes mini-project on embedded system design and IoT in healthcare.

Biomedical Equipment & Engineering Practices (BEEP)

The objective of this module is to familiarize the students with medical tools and equipment frequently used in different medical and rehabilitation engineering departments. The equipment used in Operating Room, Intensive Care Unit, Radiotherapy, Cardiology, Neurology sections, clinical laboratory, physiotherapy department, rehabilitation department will be covered. In this module the students will learn the nature of biological information measured by this equipment. A brief explanation of circuits, mechanical and biochemical parameters involved in the measurements will be explained. Students will learn about the common medical equipment characteristics, the nature of data measured and the general concept of designing equipment and equipment maintenance practices will be discussed. Medical informatics, telemedicine and cybersecurity in healthcare will be introduced as well.