

**Maulana Abul Kalam Azad University of Technology, West Bengal***(Formerly West Bengal University of Technology)***Syllabus for B. Tech in Electronics & Communication Engineering**

(Applicable from the academic session 2018-2019)

<b>PE-EC603B</b>	<b>Bio-Medical Electronics</b>	<b>3L:0T:0P</b>	<b>3 credits</b>
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Brief introduction to human physiology.

Biomedical transducers: displacement, velocity, force, acceleration, flow, temperature, potential, dissolved ions and gases. Bio-electrodes and bio-potential amplifiers for ECG, EMG, EEG, etc.

Measurement of blood temperature, pressure and flow. Impedanceplethysmography. Ultrasonic, X-ray and nuclear imaging.

Prostheses and aids: pacemakers, defibrillators, heart-lung machine, artificial kidney, aids for the handicapped. Safety aspects.

**Text/Reference Books:**

1. W.F. Ganong, Review of Medical Physiology, 8<sup>th</sup> Asian Ed, Medical Publishers, 1977.
2. J.G. Webster, ed., Medical Instrumentation, Houghton Mifflin, 1978.
3. A.M. Cook and J.G. Webster, eds., Therapeutic Medical Devices, Prentice-Hall, 1982.

**Course Outcomes:**

At the end of the course, students will demonstrate the ability to:

1. Understand the application of the electronic systems in biological and medical applications.
2. Understand the practical limitations on the electronic components while handling bio-substances.
3. Understand and analyze the biological processes like other electronic processes.