**The Biomedical Engineering Department**
The Biomedical Engineering (BME) Department offers a program that leads to a B.Sc. degree in Biomedical Engineering. It was founded in 1998 to maintain pace with global developments in the fields of technology pertaining to healthcare and biomedical equipment. BME Department provides hospitals and health centers with qualified engineers to cope with modern medical equipment in the areas of diagnosis, therapy, rehabilitation, and research. The curriculum has been prepared to conform to high international standards and respond to the challenges of the local, regional, and global marketplace.

BME Department at JUST is highly recognized by different academic and professional institutions in Jordan and the Middle East.

To boost its academic performance and to stand in connection with the world's technological developments, the Department has offered many scholarships for postgraduate studies in the USA.

The Department has a professional staff in various aspects of biomedical engineering whose degrees were awarded by reputable universities around the world.

Due to world developments in the field of biomedical engineering and the growing demands in medical centers in Jordan, procedures were taken to upgrade curriculum, performance, and facilities.

Preparations were made for opening laboratories for biomedical electronics, biomaterials, and computers in medicine. There are also future plans to initiate a course in equipment maintenance.

**B.Sc degree program in Biomedical Engineering at JUST has been accredited by the Engineering Accreditation Commission (EAC) of ABET, Inc., the recognized accreditor of college and university programs in applied science, computing, engineering, and technology. ABET accreditation demonstrates a program’s commitment to providing its students with a quality education.**

**BME program at JUST is the first non-USA EAC-ABET, Inc. accredited BME department program in the world.**

**Vision**
Pioneering and excellence in Biomedical Engineering education and research.

**Mission Statement**
Providing students with a solid Biomedical Engineering (BME) education, advancing the University through applied biomedical scientific research, and keeping pace with current developments in the field of BME. Serving the BME profession and the different BME-related healthcare facilities through the academic advancement,
personal growth, and skill development of BME students, in addition to technology transfer to industry and continuous workforce training.

**Objectives**

1. Visionary engineers and problem solvers, utilizing a breadth of scientific knowledge to address contemporary issues at the interface of engineering, medicine, and biology within a global, societal, and economic context.
2. Leaders in biotechnology and medical industries both in the public and private sector capable of serving national and regional industries, hospitals, and government agencies.
3. Ethically and socially conscious professional engineers functioning well in multi-disciplinary teams, effective in communicating ideas and technical information.
4. Independent learners who can master new knowledge and technologies, as well as, successfully engage in post-graduate studies and scientific research in engineering, medicine and biomedical sciences.

**Outcomes**

a. Graduates must have the ability to apply knowledge of mathematics, science and engineering.

b. Graduates must have the ability to design and conduct experiments, as well as to analyze and interpret data.

c. Graduates must have the ability to design a system, its components or processes to meet the desired needs.

d. Graduates must have the ability to function within multi-disciplinary teams.

e. Graduates must have the ability to identify, formulate, and solve engineering problems.

f. Graduates must have an understanding of professional and ethical responsibilities.

g. Graduates must have the ability to communicate effectively.

h. Graduates must have the broad education necessary for understanding the impact of engineering solutions in a global and societal context.

i. Graduates must recognize the need for, and the ability to engage in, life-long learning.

j. Graduates must have knowledge of contemporary issues.

k. Graduates must have an ability to use the techniques, skills, and modern engineering tools necessary for engineering practices.

l. Graduates must demonstrate adequate Knowledge of biology, physiology, and the capability of applying advanced mathematics (including differential equations and statistics), science and engineering to solve the problems and the interface of engineering and biology.

m. Graduates must demonstrate an ability to make measurements on, and interpret data from, living systems, addressing the problems associated with the interaction between living and non-living materials and systems.

**Department Staff**

- Dr. Rami Oweis, Ph.D. in Biomedical Engineering, Associate Professor, Chairperson of the BME Department.
- Dr. Mashhour Bani Amer, Ph.D. in Biomedical Engineering, Associate Professor.
- Dr. Naser Hamdi, Ph.D. in Biomedical Engineering, Assistant Professor.
- Dr. Khaldon Saleh, Ph.D. in Biomedical Engineering, Assistant Professor.
- Dr. Luay Fraiwan, Ph.D. in Biomedical Engineering, Assistant Professor.

**Department Engineers and administrative staff**

- Eng. Ruba E. Alomari
- Eng. Shereen J. Haddad
Eng. Dima H. Bani Hani
Mrs. Sumaya M. Abu Salem, department secretary
Saleh A. Al-jazairi, Clerk

Academic Activities
The BME department provides various aspects in theoretical and practical teaching topics, graduation projects and seminars.

Department Laboratories
The BME department at JUST is equipped with advanced laboratories, these include:

- **Electronic Circuits Lab**: This lab is used for teaching electronic devices and circuits and to carry out class and design projects. The lab also contains a wide range of electronic components.

- **Biomedical Instrumentation Lab I**: This lab is used for teaching medical instrumentation; it contains two pre-wired panels with a variety of accessories. It provides training in basic monitoring circuitry, such as ECG, EEG, EMG, pulse rate, and temperature monitors. The lab is used to conduct a wide range of experiments in medical instrumentation, such as measurement of bio-potentials, temperature measurements, blood pressure measurements, and respiratory rate measurements.

- **Biomedical Instrumentation Lab II**: The aim of this lab is to cover topics studied in Biomedical Instrumentation II course experimentally and to equip students with skills needed in their future work as biomedical engineers. Also, it contains computers, high resolution data acquisition systems together with appropriate software (Matlab, Biobench, Labview, Biopac), bioamplifiers, isolation amplifiers, programmable filter, ECG multiparameter patient simulator, electrical safety analyzer. The lab is used to conduct a wide range of experiments in medical electronics, such as measurement of biopotentials (such as ECG, EEG, EMG), temperature measurements, blood pressure measurements, heart and respiratory rate measurements, medical signal and image processing, electrical safety of Pulse amplifier, Notch Filter, photoplethysmography circuit, temperature circuits, Galvanic Skin Resistance circuits and other shaping circuits. The lab is also equipped with basic test and measuring instruments such as digital multimeters, digital storage oscilloscopes, and function generators.
medical equipment and data acquisition and signal processing.

- **Digital Logic Design and Computer Architecture Lab**: The aim of this lab is to give biomedical engineering students the opportunity to participate experiments in digital logic and computer design and implementation using TTL integrated circuits including SSI, MSI and LSI ALUs.

The Design and implementation of several interfacing tasks such as interfacing with simple I/O devices using latches, buffers, and parallel adapters; parallel and serial interfacing to printers and scanners. Timer programming (wave generation, frequency meters, and real time clocks); host-to-host communication through parallel and serial links and modems are explored.

- **Graduation Projects Lab**: The graduation projects lab was designed in order to allow senior students completing their graduating project requirements to do so in a quit, well-equipped environment. The lab is spacious, containing modern computing equipment, electronic analysis and measurement tools, as well as various other hardware and software tools.

- **Computer Lab**: The biomedical engineering department computer lab was setup with state of the art computing hardware and software. The lab is used as a teaching lab, where computer applications in biomedical engineering are applied in-class. During all other times, the lab is freely open to students, enabling free internet and software access necessary for conducting research, solving class related problems, implementing computer based projects, and all other academic activities (electronic registration, on-line courses, etc.)

**Contact Information**
Biomedical Engineering Department
Faculty of Engineering
Jordan University of Science and Technology
IRBID 22110,
The Hashemite Kingdom of Jordan
Tel: +962-2-7201000 Ext 22629
Dr. Rami Oweis, Chairperson
bme@just.edu.jo