



Biomedical Engineering Program (BME)-Program Matrix



Course		Year	Aims										Knowledge and Understanding										Intellectual Skills										Professional Skills					General Skills				
			1	2	3	4	5	6	AE1	AE2	AE3	AE4	AE5	AE6	AE7	AE8	AE9	AE10	AS1	AS2	AS3	AS4	AS5	AS6	AS7	AS8	AS9	AS10	PS1	PS2	PS3	PS4	PS5	GS1	GS2	GS3	GS4	GS5				
MT1001	Mathematics 1	Level 000																																								
MT1011	Physics 1																																									
MT1002	Mechanics 1																																									
CE1042	Workshop Technology																																									
MT1024	Chemistry																																									
PD1043	Engineering Drawing and Projection*																																									
CSE101	Introduction to Computer Systems																																									
MT1003	Mathematics 2																																									
MT1004	Mechanics 2																																									
MT1012	Physics 2																																									
UN1011	English 1																																									
UN1012	English 2																																									
MT1121	Organic chemistry																																									
ECR141	Electric Power																																									
CSE152	Data structures and Algorithms																																									
MP1174	Fluid Mechanics																																									
CCE161	Electric circuits																																									
CSE153	Digital logic design																																									
MT1103	Theory of probability & Statistics																																									
UN1131	Technical writing																																									
MT1102	Mathematics 4																																									
MP1172	Thermodynamics																																									
MT1101	Mathematics 3																																									
CE101	Strength of materials																																									
MT1201	Numerical Analysis																																									
CCE261	Electronics 1																																									
PD1201	Stress Analysis																																									
MP1271	Heat and Mass Transfer																																									
UN1292	Introduction to Human Anatomy																																									
UN1232	Law in Management, Accounting, and Work																																									
UN1231	Presentation Skills																																									
CCE262	Electromagnetic Fields																																									
UN1291	Biochemistry and Molecular Biology																																									
CCE251	Measurements																																									
CCE252	Automatic Control Systems																																									
CCE264	Electronics 2																																									
CSE363	Training 1 on BME	Level 300																																								
CSE362	Analysis and Digital Signal Processing																																									
CSE352	Sensors and Actuators																																									
UN1362	Microbiology and Immunology																																									
MP1371	3D Modeling and Simulation of																																									
CCE396	Biomedical Measurements																																									
UN1394	Introduction to Physiology												</																													



Vision

To reach the innovation honor and leadership Locally and Regionally in the field of medical engineering and its applications



Mission

Preparation excellent engineers and the pioneers qualified in Biomedical Engineering. In order to be capable of computation Locally and Regionally in the fields of practical applications and scientific research to be a role model in the development of society and Resources development



Faculty Dean
Prof. Mohamed Abd-Elazeem Mohammed

Vice Dean for Education and Student Affairs
Prof. Mohammed Gamal Mahdy

Aims

1. Apply knowledge of mathematics, science, and engineering concepts to solve fundamental engineering problems, and to design a system, components, and process to meet the required needs within realistic constraints and interpret its data.
2. Communicate and work effectively within multi-disciplinary teams and show contextual understanding as well as professional and ethical responsibilities considering the impacts of engineering solutions on society.
3. Encourage the in-self and life-long learning to acquire the required knowledge, skills, techniques, and the appropriate engineering tools, and apply them to the most recent and contemporary engineering issues and make the decisions related to managing projects.
4. Apply basic knowledge of science to conduct experiments that help in the design of digital biomedical systems and solving problems at the interface of engineering and biology.
5. Use modern techniques and skills to design biomedical systems in a teamwork manner considering professional and ethical responsibilities in biology and evaluate the economics, technical aspects, and societal impact of these biomedical systems.
6. Acquire modern technical awareness and use the accumulated knowledge to implement all the phases of the development life cycle of medical systems that are associated with the interaction between living and non-living materials and identify patents, marketing, the regulatory environment, and quality control issues of these systems

Executive Manger
Assoc. Prof. Hossam Eldeen Moustafa

Graduation Specifications

- B1.** Apply knowledge of life sciences, advanced mathematics, physical sciences, life sciences and engineering to biological and medical systems.
- B2.** Design, conduct and document laboratory experiments involving biological or medical digital systems.
- B3.** Design digital systems, devices and processes for use in medicine, health care or biological applications.
- B4.** Work within multidisciplinary teams consisting of engineers, clinicians, medical researchers, biologists, embedded systems, and non-technical personnel.
- B5.** Identify, formulate, and solve problems at the interface of engineering and biology.
- B6.** Consider professional and ethical responsibilities in biology and medicine.
- B7.** Evaluate the economics, technical aspects, and societal impact of biomedical research, process development or product development.
- B8.** Use modern techniques, skills and tools necessary for bioengineering practice and for disseminating the results of their work.
- B9.** Obtain, analyze and interpret data from living systems, addressing the problems associated with the interaction between living and non-living materials and systems using modern techniques.
- B10.** Recognize intellectual property and patents, marketing, the regulatory environment and quality control issues for products and processes used in medicine and health care.
- B11.** Have modern technical awareness in appropriate specialist applications of technology in the Biomedical Engineering field.
- B12.** Use accumulated knowledge to provide advice on the selection, use of, supervising performance testing of, and maintenance of medical equipment in clinic and hospital environments\

Program Coordinator
Assis. Prof. Ehab Hany Abdelhay