

To reach the innovation

honor and leadership Locally

and Regionally in the field of

medical engineering and its

Course Name

rkshop Technology

Engineering Drawing and Project

roduction to Compute

Mechanics 2 Physics-2

English-1 English-2

Organic-chem

Data structures and Algorit

Electric cire

Digital logic d

Mathematics 4

Mathematics

Strength of mat

Numerical Ana

Electronics Stress Analys

inagement, Accounting, and Worl

ectromagnetic Fields stry and Molecular Biology

Electronics 2

Training 1 on BM

Analog and Digital Signal Processing Sensors and Actuators

Project 1 on BMI

Properties of Matter in Biomedical Applications Image Processing

Medical Imaging ction to Civil Engir

Database Systems Training 2 on BME

Project 2 on BME

edical and pharmaceutical Procedure

Elective

Project Manageme Project 3 on BME

Bioinformatic

odynamics and Bio-mo

Computer Graphics

ction of micro-technology and Nanotechnology

on and natural language processors

biology and Immunity deling and Simulation

ion to Physiology

Theory of probability

Course Code

PDE04

FCR 141

CSE152

MPE171 ECE161

CSE15

UNR1 MTH1

MPE17

PDF18

ECE26

CSE363 CSE353 BME39 MPE37 ECE39

PDE393 CSE395

MPE373

MPE471

ECE491

applications

BIOMEDICAL ENGINEERING PROGRAM (BME) PROGRAM MATRIX

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Program Aims

1- Apply knowledge of mathematics, science, and engineering concepts to solve fundamental engineering problems, and to design a sys. components, and process to meet the reg 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 B7. Evaluate the economics, technical aspects, and societal impact of biomedical research, process development or product development. engineering and biology.

Knowledge and Understanding Skills

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5- Use modern techniques and skills to design biomedical systems in a teamwork manner considering profes onal and ethical res 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

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dentifiy the concepts and theories of mathe

. Select the materials appropriate for biomedical instru . Define the design methods and tools for biomedical in . Identify the techniques for making measurements and

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methodologies of solving biomedical engineering prob

ognize the principles of design including elements design, process and/or a system

ems, codes of practice and sta

ont principles relevant to biomedical epi

ments and interpret data Outline the role of a biomedical engineer in hospitals and healthcare facilities. State management, finance, liability and quality control as related to biomedical engineering fiel he techniques of writing reports for the health care prof ethical and legal principles of professional practice in th

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B4. Work within multidisciplinary teams consisting of engineers, clinicians, medical researchers, biologists, emb. sys & non-technical personnel. B5. Identify, formulate, and solve problems at the interface of engineering and biology.

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B6. Consider professional and ethical responsibilities in biology and medicine.

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.

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

B1. Apply knowledge of life sciences, advanced mathematics, physical sciences, life sciences and engineering to biological and medical systems

modern techniques.

B10. Recognize intellectual property and patents, marketing, the regulatory environment and quality control issues for products and processes used in medicine & health care B11. Have modern technical awareness in appropriate specialist applications of technology in the Biomedical Engineering field. Professional and Practical Skills

B12. Use accumulated knowledge to provide advice on the selection, use of, supervising performance testing of, and ma

Graduate Attributes

Program mission

of Engine

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 General and Transferable Skil Course Name 1 2 3 4 5 6 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17 A18 A9 A10 A11 A12 A13 A14 A15 A16 A17 A18 A19 B1 2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 B13 B14 B15 B16 B17 C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 D1 D2 D3 D4 D5 D6 D7 D8 C Mathematics 1 Workshop Technology PDE043 Engineering Drawing and Project duction to Computer Sys Mechanics 2 UNR03 English-2 Organic-chemistry FCR 141 CSE152 Data structures and Algorithm MPE17 ECE16 Fluid Mechani Electric circuit CSE15 Digital logic desig Theory of probability & Sta UNR1 MTH1 Mathematics 4 MPE13 MTH10 hermodynamic Mathematics 3 PDF18 Strength of mater Numerical Analys Electronics 1 Stress Analysis at and Mass Transi ction to Human An ECE26 BME29 UNR23 in Management, Accounting, and V Electromagnetic Fields emistry and Molecular Biology Automatic Control Sy Electronics 2 Training 1 on BME CSE363 CSE352 Analog and Digital Signal Processing Sensors and Actuators biology and Immunity deling and Simulation BME394 ntroduction to Physiology Project 1 on BME PDE393 CSE395 Properties of Matter in Biomedical Applicati Image Processin Marketing Medical Imaging ction to Civil Engi Database Systems Training 2 on BME 491 Project 2 on BME dical and pharmaceutical Pro Elective Project Managemer Project 3 on BME Bioinformatics nodynamics and Bio-mole Computer Graphic X X



Faculty Dean Prof. Mohamed Abd-Elazeem Mohammed Vice Dean for Education and Students Prof. Mohammed Gamal Mahdy

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matics and sciences, concerning the biomedical sys

Executive Manger Assoc. Prof. Hossam Eldeen Moustafa

he graduates of the Biomedical engineering program should be able 1 D1. Collaborate effectively within ultidisciplinary team. D2. Work in stressful en thin constraints D3. Communicate effectively D4. Demonstrate efficient IT capabilities D5. Lead and motivate individuals D6. Effectively manage tasks, time, ar ources D7. Search for information and engag in life-long self learning in biomedical engineering. D8. Acquire entrepreneurial skills. D9. Refer to relevant literatures.

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Program Coordinator Assis. Prof. Ehab Hany Abddelhay



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