Aacademic Program Description Form

University Name: University of Warith AL-Anbiya

Faculty/Institute: College of Engineering

Scientific Department: Biomedical Engineering Department

Academic or Professional Program Name: Bachelor of Biomedical Engineering

Final Certificate Name: Bachelor's Degree in Biomedical Engineering

Academic Degree System: Semester System &Bologna Process

Description Preparation Date: 2024/12/1

File Completion Date: 2024/12/29

Signature:

Head of Department: Osama Abdulbari Khadhair

Date: 8/2/2025

Signature:

Assistant Dean For Scientific Affairs: Dr.Hassan .T.Hashim

Date: 5/2/2025

The file is checked by: Dr. Salam Al-Rbeawi

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 5/2/2025

Signature:

Approval of the Dean

أ.م.د.حسين هادي حسين
عميد كلية الهندسة

1. Program Vision

The Biomedical Engineering Department aims to become a leading and distinguished global educational institution in the field of biomedical engineering. The department seeks to be a natural destination for scientific, research, and practical consultations, in addition to enhancing industrial skills. It aspires to prepare students for successful careers based on high-quality education and rigorous academic standards. Through this vision, the department contributes to achieving comprehensive sustainable development in all the areas it encompasses.

2. Program Mission

The Biomedical Engineering Department strives to empower graduates with scientific and technological knowledge, along with practical skills, in the field of biomedical engineering. The department leverages the latest technologies and quantitative engineering methods to advance applications in medical sciences. Its mission aims to prepare graduates capable of designing and developing innovative diagnostic and therapeutic devices that contribute to improving the quality of healthcare and enhancing medical services.

3. Program Objectives

The duration of study in the department is five years, including practical training in hospitals and maintenance centers during the summer break in the last two years. This prepares graduates with comprehensive skills and knowledge, enabling them to:

- Acquire the fundamental skills necessary to assess hospital and healthcare center design requirements and communicate effectively with doctors to meet the needs of their medical specialties.
- Design, manufacture, develop, and maintain medical devices and equipment, in addition to advancing measurement and diagnostic systems.
- Supervise biomedical engineers in hospitals and specialized healthcare centers and provide the necessary training on all medical devices across various hospital departments.
- Manage medical devices by accurately identifying the needs of healthcare institutions for equipment and devices.
- Establish technical standards for importing medical devices on

behalf of the Ministry of Health.

- Implement quality systems to ensure the efficiency and functionality of medical devices and equipment.

4. Program Accreditation

In progress.

5. Other external influences

The scientific library, the internet, laboratories, and scientific seminars.

6. A. Program Structure (Semester system)

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	9	15		
College Requirements	14	37		
Department Requirements	51	137		
Summer Training	Yes			
Other				

6. B. Program Structure (Credit Bologna system)

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	7	19		Essential
College Requirements	18	85		Essential
Department Requirements	38	196		Essential
Summer Training	Yes			Essential
Other				

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
1	UOW-101	Human Rights and Democracy	2	0
1	UOW -102	English Language I	2	0
1	ENG-101	Mathematics I	3	0
1	ENG-102	Engineering Drawing	1	3
1	BME-111	bio-Chemistry	4	3
1	BME-112	Electrical Circuits I	3	3
1	UOW-103	Arabic Language I	2	0
1	UOW-104	Computer science I	1	2
1	ENG-103	Mathematics II	3	0
1	ENG-104	Physics	3	0
1	BME-121	Medical Physics	2	3
1	BME-122	Electrical Circuits II	3	3
2	BME-211	Electronic Circuits I	3	3
2	BME-212	Cell Biology	3	0
2	ENG-201	MATHEMATICS III	3	0
2	ENG-202	Engineering Mechanics	3	0
2	BME-213	Medical Informatics	2	2
2	BME-214	Materials Science	2	2
2	UOW-201	Baath Part Criminals	1	0
2	UOW-105	Ethics	2	0
2	UOW -202	Arabic Language II	2	0
2	UOW-102	English Language II	2	0
2	UOW-104	Computer science II	1	2
2	ENG-203	Computer Programming	4	3
2	BME-222	Electronics Circuits II	3	3
2	BME-224	Limbs Anatomy	3	3
3	WBM-31-01	Engineering Analysis	3	0
3	WBM-31-02	Mechanics of Materials I	2	0
3	WBM-31-03	Trunk Anatomy	2	3
3	WBM-31-04	Physiology I	2	3
3	WBM-31-05	Histology	2	2
3	WBM-31-06	Medical Equipment	2	2
3	WBM-31-07	Fiber Optics	2	2
3	WBM-32-01	Engineering Statistics	2	0
3	WBM-32-02	Numerical Analysis	2	2
3	WBM-32-03	Mechanics of Materials II	2	3
3	WBM-32-04	Neck & Nervous Anatomy	2	3
3	WBM-32-05	Physiology II	2	3
3	WBM-32-06	Electronics III	2	0
3	WBM-32-07	Bone Injury and Fractures	2	0

4	WBM-41-01	Biomechanics I	2	3
4	WBM-41-02	Biomaterials I	2	0
4	WBM-41-03	Communications I	2	3
4	WBM-41-04	Medical Instrumentation	2	2
4	WBM-41-05	Thermo-Fluid Mechanics I	2	2
4	WBM-41-06	Digital Electronics I	2	3
4	WBM-41-07	Pathology	2	0
4	WBM-42-01	Biomechanics II	2	3
4	WBM-42-02	Biomaterials II	2	0
4	WBM-42-03	Communications II	2	3
4	WBM-42-04	Analytical Mechanics	2	0
4	WBM-42-05	Therapeutic Instrumentation	2	2
4	WBM-42-06	Digital Electronics II	2	3
4	WBM-42-07	Thermo-Fluid Mechanics II	2	2
5	WBM-51-01	Project	0	4
5	WBM-51-02	Elective I	2	0
5	WBM-51-03	Diagnostic Instrumentation	2	2
5	WBM-51-04	Control I	2	2
5	WBM-51-05	Image Processing	2	2
5	WBM-51-06	Microprocessor	2	3
5	WBM-51-07	Hospital System & Design	2	0
5	WBM-52-01	Project	0	4
5	WBM-52-02	Elective II	2	0
5	WBM-52-03	Elective III	2	0
5	WBM-52-04	Control II	2	3
5	WBM-52-05	Computer Network	2	0
5	WBM-52-06	Biotribology	2	0
5	WBM-52-07	Neural Networks	2	0
5	WBM-52-08	Biomedical Sensor	2	0

8. Graduates Learning outcomes

1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.
3. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
4. An ability to communicate effectively with a range of audiences.
5. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environment, and social context.
6. An ability to recognize the ongoing need to acquire new knowledge, to choose appropriate learning strategies, and to apply this knowledge.

An ability to function effectively on a team whose members together provide leadership , create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

9. Teaching and Learning Methods

1. Theoretical lectures.
2. Tutorial discussion sessions.
3. Practical experiments in laboratories.
4. Scientific seminars presented by students.
5. Graduation projects.
6. Scientific field visits.

10. Evaluation methods

- Quizzes.
- Assignments.

- Projects.
- Report.

11. Faculty

Department teaching members

Academic title	Specialization		Special Skills	Staff	Lecturer
	General	Special			
Assistant Professor	Material Engineering	Biomaterial		✓	
Assistant Professor	Electrical Engineering	Power		✓	
Assistant Professor	Biomedical Engineering	Biomedical engineering		✓	
Assistant Professor	Biomedical Engineering	Biomedical engineering		✓	
Assistant Professor	Biomedical Engineering	Biomedical engineering		✓	
Lecturer	Medical Instrumentation Techniques	Electronic medical instrumentation technologies		✓	
Lecturer	Biomedical Engineering	Biomaterials		✓	
Lecturer	Biomedical Engineering	Biomedical Engineering		✓	
Lecturer	Electrical Engineering	Communications and electronics			✓
Lecturer	Material Engineering	Composite materials		✓	
Lecturer	Computer Engineering	Computer networks and artificial intelligence			✓

Lecturer	Electrical Engineering	Communications			✓
Lecturer	Biomedical Engineering	Bioelectricity		✓	
Lecturer	Biomedical engineering	Biomedical engineering		✓	
Lecturer	Electromagnetic systems engineering	Microsystems and nanotechnology		✓	
Lecturer	Biomedical Engineering	Bioelectricity			✓
Lecturer	Biomedical Engineering	Biomedical engineering			✓

12. Acceptance Criterion

- The admission conditions for students are in accordance with the guidelines issued by the Ministry of Higher Education and Scientific Research (Central Admission).
- The student must be medically fit for the specialty they are applying for.
- Admission requirements for the scientific department.
- The student must choose their preferred specialization from multiple options, ranked by preference.
- The minimum acceptance grade in the high school diploma.
- The department's capacity for student intake.

13. The most important sources of information about the program

1. Sources approved by international universities.
2. Local trends.
3. Market needs.
4. Studies and questionnaires.
5. Specialized seminars and workshops with beneficiaries .

14. Program Development Plan

The faculty members aim to keep pace with scientific advancements and improve teaching and learning methods by attending and organizing scientific and cultural seminars and lectures. They also conduct periodic lectures under the title "The Cultural Program for Quality."

The department staff strives to enhance levels of student engagement, guidance, university service activities, professional and developmental initiatives, and interaction with medical and professional staff, as well as employers.