

**Ministry of Higher Education and Scientific
Research
Scientific Supervision and Scientific Evaluation
Apparatus
Directorate of Quality Assurance and
Academic Accreditation
Accreditation Section**



Academic Program and Course Description Guide

2025-2024

Academic Program Description Form

University Name: Al-Mustaqbal University

Faculty/Institute: Faculty of Science

Scientific Department: Medical Physics

Academic or Professional Program Name: Bachelor's

Final Certificate Name: Medical Physics

Academic System: courses

Description Preparation Date: 30/9/2024

File Completion Date: 4/10/2024

Signature:



Head of Department Name: .

Dr. Anis Ali Hassan Alwan

Date: 4/10/2024

The file is checked by: Dr.Sarah Mahdi Obaid

Unit of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Unit:

Date: 4/10/2024

Signature:



Approval of the Dean



1.Program Vision

To be a nationally and regionally distinguished and leading program in preparing scientific competencies capable of integrating physics and medical sciences and actively contributing to the development of healthcare technologies.

2.Program Mission

The Bachelor of Medical Physics program is committed to providing high-quality academic and practical education that enables students to acquire the knowledge and skills necessary to apply physical principles in medical fields, enhancing scientific research and community engagement, in line with academic quality standards and labor market needs.

3.Program Objectives

- 1-Provide distinguished scientific and practical education in medical physics that links physical foundations with modern clinical applications
- 2-Prepare graduates with the professional competence to safely and effectively use diagnostic and therapeutic medical devices.
- 3-Enhance students' research skills in medical imaging, radiation therapy, and radiation protection
- 4-Instill ethical and professional values in the practice of medical physics, ensuring adherence to safety and quality standards.
- 5-Enable graduates to positively interact with the community and participate in health awareness and radiation prevention programs.
- 6-Support the continuous professional development of faculty and students through training programs and partnerships with medical and academic institutions.

4.Program Accreditation

The program has not yet received programmatic accreditation, but as part of its efforts, the Department of Medical Physics is in the process of completing the requirements for programmatic accreditation.

5. Other external influences

Program Sponsors

University of Al-Qadisiyah – College of Science – Department of Medical Physics

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	4	8	15.19%	
College Requirements	2	6	10.13%	
Department Requirements	45	179	74.68%	
Summer Training	2	/		
Other				

* This can include notes whether the course is basic or optional.

8. Expected learning outcomes of the program .

knowledge

1. Explains the fundamental and advanced principles of medical physics and their clinical and diagnostic applications.
2. Demonstrates the operating principles of various medical devices such as Magnetic Resonance Imaging (MRI), Computed Tomography (CT), and X-ray systems.

Education outcomes

3. Describes the principles of radiation safety and protective measures in medical facilities. 4. Develops self-learning skills and independent thinking to pursue postgraduate studies or enter the job market.	
Skills	
1. Operates and evaluates the performance of diagnostic and therapeutic medical devices efficiently. 2. Analyzes medical data using appropriate software and modern technologies. 3. Manages time effectively and actively participates in multidisciplinary teams. 4. Develops critical thinking and self-learning skills for continued education or effective professional practice.	education Outputs
values	
1. Adheres to professional conduct and ethical standards in medical and research settings. 2. Communicates effectively with both specialists and non-specialists, demonstrating respect for diversity and inclusiveness. 3. Exhibits social responsibility and participates in initiatives that promote public health.	education Outputs

9. Teaching and Learning Strategies
1. Explains the fundamental and advanced principles of medical physics. 2. Demonstrates the operating principles of medical devices such as MRI, CT, PET, and SPECT. 3. Describes radiation safety principles and protective measures. 4. Engages in practical training through laboratories, simulations, and project-based learning. 5. Utilizes e-learning tools, specialized software, and digital physics applications. 6. Participates in hands-on labs, simulation scenarios, and field-based projects. 7. Practices collaborative learning, role-playing, and group projects. 8. Applies problem-based learning, situational analysis, and interactive discussions. 9. Participates in community service activities, health awareness projects, and voluntary extracurricular initiatives.

10.Evaluation methods

1. Explains the fundamental and advanced principles of medical physics.
2. Demonstrates the operating principles of medical devices such as MRI, CT, PET, SPECT.
3. Describes radiation safety principles and protective measures.
4. Engages in practical training through laboratories, simulations, and project-based
5. Utilizes e-learning tools, specialized software, and digital physics applications.
6. Participates in hands-on labs, simulation scenarios, and field-based projects.
7. Practices collaborative learning, role-playing, and group projects.
8. Applies problem-based learning, situational analysis, and interactive discussions.
9. Participates in community service activities, health awareness projects, and volun extracurricular initiatives.

11 . Faculty members

Faculty preparation		Specialization		Academic title and name
lecturer	angel	private	general	
	√	Radiation physics	Physics	Dr. Anis Ali Hassan Alwan .A
	√	Artificial Intelligence Engineering	Electrical power engineering	Dr. Ferial Ibrahim Jabbar
	√	Laser Physics	Physics	Dr. Duaa Jaafar Diaa Jaber
	√	Animal surgery	Veterinary medicine	Dr. Karim Abis Handoul Hussein
	√	nuclear physics	Physics	Dr. Sarah Mahdi Obaid
	√	Medical Physics	Physics	Dr. Mukhallad Ali Zabala
	√	industrial electronics	Electrical Engineering	M.M. Israa Hussein Amwishi
	√	networks	Information Technology	M.M. Mortada Sabry Muslim
	√	sediments	Geological Sciences	M.M. Mohammed Mahdi Abbas Al-Saeed
	√	Criminal law	law	M.M. Fatima Makki Shaalan
	√	Medical Physics	Physics	M.M. Hawazin Fadel Ne'mah
	√	Laser Physics	Physics	M.M. Ali Salman Hammadi Abis
	√	polymers	Materials Engineering	M.M. Ammar Karim Kazim

	√	nuclear physics	Physics	M.M. Ali Jafar Obaid
	√	medicinal plants	Agricultural Sciences	M.M. Samaher Saad Hadi Adhab
	√	Criminal law	law	M.M. Sakina Talib Khairallah
	√	Soil and water resources	Agricultural Sciences	M.M. Fatima Basem Yassin Khader
	√	business management	business management	M.M. Al-Shimaa Firas Muhammad Reda
	√	artificial intelligence	computer technologies	M.M. Mustafa Amir Ibrahim
	√	communication	computer technologies	M.M. Lubna Ali Jalil Shanawa
	√	Networks and Communications	Computer Science	M.M. Najwan Thaer Ali
	√	Laser Physics	Physics	M.M. Duaa Saad Shaker
√		Medical Physics	Physics	Dr. Saba Abdul Zahra Obaid Al-Rubaie
√		Medical Physics	Physics	M.M. Murtadha Kazim Salman
√		Medical Physics	Physics	D. Nihad Abdel Amir Saleh
√		Atomic physics	Physics	M.M. Sara Jalil Ahmed
√		Medical Nuclear Physics	Physics	Dr. Fouad Attia Majeed

Professional Development	
Mentoring new faculty members	
1. Provide comprehensive orientation programs for new faculty members, including training courses on effective teaching methods, use of modern technology, assessment techniques, and curriculum design, aiming to enhance their teaching competencies and ensure academic quality. 2. Organize workshops for new faculty focused on improving the effectiveness of scientific research publication.	
Professional development of faculty members	
1. Provide orientation and qualification programs upon appointment, covering academic quality systems, learning outcomes, and university teaching ethics.	

2. Train faculty members on curriculum design, course planning, and the use of e-learning systems.
3. Organize workshops on modern teaching methods, student-centered learning, and the integration of educational technology.
4. Conduct training sessions on effective assessment, development of evaluation tools, and test construction.
5. Encourage faculty members to attend local and international scientific conferences and seminars.
6. Offer courses on research skills, proposal writing, and publishing in peer-reviewed journals.
7. Provide financial and moral support for participation in research projects within and outside the institution.

12. Acceptance Criterion

1. The student must be a graduate of middle school or its equivalent, endorsed by the Iraqi Ministry of Education, for the following streams: Science, Applied Sciences, and Biology. A minimum of 58% (morning studies) and 55% (evening studies) is required
2. Male students who have graduated from the last three years are accepted
3. Female students who have graduated from the last five years are eligible to apply -3
4. The required original documents must be submitted in accordance with the conditions, including a middle school transcript containing grades and certified by the Education Directorate, within one week of the application date. Otherwise, admission will be void.
5. The top-ranked student in the grade is exempt from tuition fees for the following year

13. The most important sources of information about the program

1. Books prescribed by the Ministry of Higher Education and Scientific Research
2. External scientific sources .
3. Using libraries and the Internet .

14. Program Development Plan

To strive to make medical physics a concrete scientific discipline by applying physical phenomena, concepts, and principles to the reality of contemporary society.

Required program Learning outcomes														
Year/Level	Course Name	Course code	Knowledge				Skills				Ethics			
			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
2024-2025 First stage	Mechanics 1	UOMU031011		√	√	√	√	√	√	√				
	Electricity	UOMU031012	√	√	√	√	√	√	√	√				
	Mathematics	UOMU031013	√	√	√	√			√	√				
	Human and democracy	UOMU031014	√	√	√	√	√	√	√	√	√	√	√	√
	Arabic	UOMU031015	√	√	√	√	√	√	√	√	√	√	√	√

	Analytic Chemistry	UOMU031016	√	√	√	√	√	√	√	√				
		Secondary	√			√	√			√				

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
2024-2025 second stage	11UOMU03 1	Magnetism	Basic	√	√		√	√	√	√	√				
	UOMU0310 21	Optics	Basic	√	√	√	√		√	√	√				
	UOMU0310 31	Atomic molecular physics	Basic	√	√		√	√	√		√				
	UOMU0310 14	Electromag netic waves	Basic	√	√		√	√			√				
	UOMU0310 15	Computer	Secondary	√		√		√	√	√	√				
	UOMU0310 16	Physiology	Basic	√		√	√	√		√	√				

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Secondary or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
2024-2025 Third stage	1UOMU03 11	Medical physics 1	Basic		√	√	√	√	√	√	√				
	UOMU031 21	Anatomy 1	Basic	√	√	√			√	√	√				
	UOMU031 31	Physics Diagnostic Radiology	Basic	√		√		√	√	√	√				
	UOMU031 14	Laser Basic	Basic	√	√		√	√	√	√	√				
	UOMU031 15	Quantum Mechanics in medicine	Basic	√		√	√		√	√	√				
	UOMU031 16	Medical Terminology	Basic		√	√		√	√		√				
	UOMU031 17	Optional 1	Secondary	√	√		√	√			√				

Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
2024-2025 Four stage	311UOMU01	Medical Physics III	Basic	√	√		√	√		√	√				
	UOMU03112	Physics of Medical Devices II	Basic		√		√		√	√	√				
	UOMU03113	Nuclear Medicine	Basic	√	√			√		√	√				
	UOMU03114	Medical image processing	Basic	√	√			√	√		√				
	UOMU03115	Radiation Protection	Basic	√	√		√	√	√	√	√				

	UOMU0311 6	Photonics	Basic	√	√			√	√		√				
	UOMU0311 7	Graduation Project I	Basic	√	√			√	√	√					