Academic Program Description Form

(Adopted Based on the Twinning Agreement with the University of Karbala – College of Applied Medical Sciences, Department of Medical Physics, in Accordance with the Bologna System)

University Name: **Al-Warith Al-Anbiya**

Faculty/Institute: **Sciences**

Scientific Department: Medical Physics

Academic or Professional Program Name: **Bachelor Science**

Final Certificate Name: **Bachelor Science in** Medical Physics

Academic System: Bologna System

Description Preparation Date: **22/9/2024**

File Completion Date: **22/9/2024**

Signature:

Head of Department Name: Dr. Shaymaa Hussein Nawfal

جامعة وارث الأنبياء
كلية العلوم
قسم الفيزياء الطبية

Date: 22/9/2024

The file is checked by:

Director of the Quality Assurance and University Performance Division:

Name: MSc. Kawar Sadiq Mohsen

Date: 30/9/2024

Signature:

جامعة وارث الأنبياء
عمادة كلية العلوم

Approval of the Dean

Dr. Shaymaa Hussein Nawfal

University of Warith AL-Anbiaa

First Batch: Bachelor's degree (B.Sc.) – Medial Physics

First batch: Bachelor of Science - Medical Physics.

Approval of the Dean of the College

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1. Mission and Vision Statement

Vision Statement:

The future vision of the Department of Medical Physics is to::

1. To be a leading and distinguished academic body in the field of medical physics in Iraq..
2. Establishing a platform for fruitful scientific research cooperation between the department and medical and academic institutions, both locally and internationally..
3. To establish and Coretain professional standards for the profession of medical physicist in the fields of diagnostic imaging, radiation oncology, and nuclear medicine..

Mission Statement:

The mission of the Department of Medical Physics is to enhance the medical profession, and thus serve the community, by preparing qualified healthcare professionals capable of ensuring the highest quality and efficiency in the diagnosis and treatment of patients in specialties such as radiotherapy, nuclear medicine, diagnostic imaging, radiation oncology, and other related disciplines. This is achieved by providing students with a solid academic foundation, along with clinical training that enables them to apply a combination of physics concepts and techniques in the medical field..

2. Program specifications

240	Number of units	**BSc-MPH**	**Program code**
Full time	How to attend	**4 levels 8 chapters**	**Duration**

The Bachelor of Science in Medical Physics is structured to provide graduates with specific, specialized skills that qualify them for practice in hospitals and other clinics related to radiation oncology and nuclear medicine. The degree consists of four major levels of study spread over eight semesters, with each semester counting for 30 credits.ECTS (European Credit and Transfer System).

The first level aims to provide students with the basics in some relevant fields of study, which gives them knowledge and skills in subjects such as

mechanics, electricity, human biology, mathematics, computers, English language, and chemistry..

The second level of study introduces students to more specialized units in the fields of physics and biology related to the specialty of medical physics. The basic studies of medical physics are more clearly defined in the third and fourth levels, where medical physics is addressed in a comprehensive and detailed manner..

The quality of study hours is varied, including laboratories, practical applications, orientation classes, seminars, and classroom lectures. Assessment methods are also varied, relying on student exams, quizzes, projects, seminars, and other activities related to their major and meeting community and market needs..

From the beginning of their education, teachers encourage students to acquire skills in presenting their activities in a manner appropriate to the topic under discussion, and highlight the importance of their presence in health care and community service centers..

3. Program objectives

This program aims to::

1. **Providing Supportive to the public and private health sectors**By preparing highly trained technicians specialized in radiation-related fields, equipped with a strong knowledge background..
2. **Graduating members capable of successfully handling advanced studies**In scientific research related to the fields of medical physics.
3. **Preparing students to be cooperative members of healthcare centers**Able to adapt to different practical conditions and situations.
4. **Preparing ethically responsible and qualified technicians**To compete and achieve self-sufficiency, while developing their effective communication skills..

4. Student learning outcomes

Skills of a Bachelor of Medical Physics graduate(B.Sc) Required:

1. **basic scientific knowledge:**
   This includes applicable scientific knowledge, with an emphasis on the content of the Core functions of the body's systems and organs, including::
   - Concepts of radioactivity, radiation, its properties and units of measurement.
   - Dosage measurement using dosimeters(Dosimeter).
   - Principles and procedures for radiation protection and radiation safety.
   - Operating principles, systems, and procedures used in clinical, diagnostic imaging, or radiation oncology procedures.
2. **Clinical and technical skills:**
   - Performing necessary clinical procedures to Supportive the medical physicist.
   - Conduct and design independent research projects.
3. **Scientific communication skills:**
   - Ability to communicate effectively in writing and orally with faculty and colleagues.
   - Ability to deal with research funding agencies and relevant scientific journals.
4. **Research and problem-solving skills:**
   - Retrieve and manage information needed to solve scientific problems related to the field.
   - Ability to perform or execute clinical procedures, processes, or research projects.
   - Ability to perform quantitative analyses of simple scientific data, and effectively demonstrate applied scientific skills.

5. Academic staff

the name	Academic rank	Academic degree	e-mail
Prof. Dr. Hekmat Adnan Jawad	Mr	PhD	hikmatadnan@gmail.com
Asst. Prof. Dr. Shaima Hussein Noufal	assistant professor	PhD	shaymaa@uowa.edu.iq
Dr. Ahmed Musa Jafar	teacher	PhD	ahmed.mo@uowa.edu.iq
Dr. Ismail Mohamed El-Dessouki	teacher	PhD	ismail.m@uowa.edu.iq
M.M. Al-Hanouf Salam Shaker	Assistant Professor	Master's	alhanoof.salam@uowa.edu.iq
M.M. Ayman Mohammed Gabr	Assistant Professor	Master's	ayman.mo@uowa.edu.iq
M.M. Dhurgham Adel Obaid	Assistant Professor	Master's	dirgham.ad@uowa.edu.iq
M.M. Ashraf Hussein Saleh	Assistant Professor	Master's	Ashraf.H@uowa.edu.iq
M.M. Saja Basem Ali	Assistant Professor	Master's	saja.b@uowa.edu.iq
M.M. Mohammed Abdul Ali Hamza	Assistant Professor	Master's	mohammed.ab@uowa.edu.iq
M.M. Ali Nazim Munif	Assistant Professor	Master's	ali.n@uowa.edu.iq
M.M. Karar Hassan Obaid	Assistant Professor	Master's	krar.h.obaid@uowa.edu.iq
M.M. Ali Hamid Arabi	Assistant Professor	Master's	ali.h@uowa.edu.iq

6. Credit hours, evaluation, and cumulative GPA(GPA)

Cumulative GPA(GPA) and credits

According to the European Bologna System, the Bachelor's degree program at Warith Al-Anbiya University is based on the European Credit Transfer and Accreditation System.**(ECTS)**.

- **Total number of credit hours for the program:**The student workload is measured in ECTS units, with each semester typically equivalent to 30 ECTS units.
- The system includes both structured and unstructured units according to the distribution of students' workload..

Evaluation and Grades:

- Before evaluating the results, the grading system used is defined..
- The results are divided into two Core groups: pass and fail..
- Students who fail any course will have their results recorded independently according to the specified evaluation system..

Grading plan				
The group	**degree**	**Appreciation**	**Appreciation%**	**Appreciation**
Total success (50 - 100)	**A - Excellent**	**privilege**	90 - 100	Excellent performance
	B -good very	**very good**	80 - 89	Above average with some errors
	C-good	**good**	70 - 79	Good work with noticeable errors.
	D- Acceptable	**middle**	60 - 69	Acceptable but with major shortcomings
	E - Sufficient / Satisfactory	**acceptable**	50 - 59	The work meets minimum standards.
Total Sediment (0 – 49)	**FX - Precipitate (in process)**	**Precipitate (in process)**	(45-49)	Requires more work but the student is awarded the grade.
	F - Fail	**Failed**	(0-44)	It requires a lot of work.

note:

Decimals greater or less than 0.5 will be rounded to the next highest or lowest whole point (for example, a score of 54.5 will be rounded to 55, while a score of 54.4 will be rounded to 54). The University has a policy of not accepting failures close to success, so the only adjustment to grades awarded by the original examiner(s) will be the automatic rounding described above.

Calculate the cumulative average(GPA)

1. Cumulative GPA is calculated(GPA) is calculated by multiplying the grade of each course by its number of academic units (ECTS), then dividing it by the total number of program units.

Calculation method for a four-year bachelor's degree(B.Sc):

GPA = (grade of first course × ECTS + grade of second course × ECTS + …) ÷ total number of program units (usually 240 ECTS units)

7. Curriculum/Courses

First semester | 30 units

The code	Name of the material	Scheduled hours	Unscheduled hours	Units	Type	Prerequisite
MPH101	Mechanics	93	132	9	Core	-
MPH102	Analytical Chemistry	93	82	7	Core	-
MPH103	General Revival	93	132	9	President	-
UOWA101	Human rights and democracy	33	18	2	Supportive	-
UOWA102	Computer Science	63	12	2	Supportive	-

Symmeter 2 | 30 units

The code	Name of the material	Scheduled hours	Unscheduled hours	Units	Type	Prerequisite
MPH1206	Chemistry	78	97	7	Basic	-
MPH1207	Electricity and magnetism	78	97	7	Basic	-
MPH1208	mathematics	48	102	6	Basic	-
MPH1219	MATLAB	63	62	5	Supportive	Computer Science
UOWA105	English language	48	77	2	Supportive	-

Symmeter 3 | 30 units

The code	Name of the material	Scheduled hours	Unscheduled hours	Units	Type	Prerequisite
MPH23011	Heat and thermodynamics	78	97	7	Basic	-
MPH23012	Optics	78	97	7	Core	-
MPH23013	Analog and digital electronics	63	87	6	Basic	-
MPH23014	Physiology	63	87	6	Core	General Revival
UOWA107	Professional ethics	33	67	4	Supportive	-

Symmeter 4 | 30 units

The code	Name of the material	Scheduled hours	Unscheduled hours	Units	Type	Prerequisite
MPH24116	electromagnetic waves	48	77	5	Core	electricity and magnetism
MPH24117	Molecular Biology	78	97	7	Core	General Revival
MPH24018	Medical terms	33	92	5	Basic	-
MPH24019	Atomic physics	78	122	8	Core	-
MPH24020	Phonetics	33	92	5	Core	-

semester 5 | 30 units

The code	Name of the material	Scheduled hours	Unscheduled hours	Units	Type	Prerequisite
MPH35021	Medical Physics	78	72	6	Core	-
MPH35022	Anatomy	78	97	7	Core	-
MPH35123	Diagnostic Radiology Physics	78	97	7	Core	Atomic physics
MPH35024	Quantum mechanics in medicine	33	67	4	Core	-
MPH35025	Laser Basics	63	87	6	Basic	-

semester 6 | 30 units

The code	Name of the material	Scheduled hours	Unscheduled hours	Units	Type	Prerequisite
MPH36036	Medical imaging	78	97	7	Core	-
MPH36027	Materials Science	63	62	5	Basic	-
MPH36128	Medical laser applications	78	97	7	Basic	Laser Basics
MPH36129	Biochemistry	63	62	5	Core	Organic Chemistry
MPH36130	Vital statistics	63	87	6	Basic	-

Semester 7 | 30 units

The code	Name of the material	Scheduled hours	Unscheduled hours	Units	Type	Prerequisite
MPH47131	Medical image processing and analysis	78	97	7	Core	MATLAB
MPH47132	Medical Device Physics	63	87	6	Core	Digital and Analog Electronics
MPH47133	Physics of Radiotherapy	78	97	7	Core	Diagnostic Radiophysics
MPH47134	Nanotechnology	48	52	4	Core	Materials Science
CS401	Graduation project1	78	72	6	Core	-

Semester 8 | 30 units

The code	Name of the material	Scheduled hours	Unscheduled hours	Units	Type	Prerequisite
MPH48036	Neurophysics	78	72	6	Core	-
MPH48037	biomaterials	33	92	5	Core	-
MPH48138	Nuclear Medicine Physics	78	97	7	Core	Atomic physics
MPH48039	environmental pollution	63	87	6	Basic	-
CS402	Graduation project2	78	72	6	Core	Graduation Project 1

8. Contacts(Contact)

Program Director:
Name: Asst. Prof. Dr. Shaima Hussein Noufal
e-mail:shaymaa@uowa.edu.iq
Mobile number: +9647725236775

Program Coordinator:
Name: Ali Hamid Arabi

e-mail:ali.h@uowa.edu.iq

Mobile number: +96477499992750