Academic Program Description

Review of the Performance of Higher Education Institutions

Academic Program Description

Physics primarily intersects with the fields of medicine and computer science. Medical physics studies diagnostic and therapeutic applications, as well as the calculation of radiation doses. Additionally, it leverages the applications of optical, acoustic, and thermal waves in the medical domain.

Preparing specialized scientific personnel in the field of medical physics who merge knowledge and expertise in physics and medical sciences to interpret results mathematically according to scientific equations. They should be capable of harnessing this knowledge and utilizing it both academically and practically, thereby contributing to the enhancement of society, its healthcare institutions, and scientific services.

The program aimed to:

1- **Preparing specialized professionals in the modern digital fields and technologies of medical physics using the latest scientific curricula in the medical domain, at an outstanding level that competes with comparable departments in international universities, while also considering continuous curriculum updates to keep pace with scientific advancements.**
2- **Enriching students and providing them with a scientific background in various aspects of medical physics, both diagnostic and therapeutic. Additionally, encouraging them to leverage both theoretical and practical aspects to enhance their experiences and skills, making them**

more effective in serving the community.

3- Promoting scientific research in all physics applications within the diagnostic and therapeutic medical fields, whether for faculty members or students, with a particular emphasis on research in applied medical areas that can be utilized across various departments and institutions within the community.

4- Preparing graduates specialized in medical physics, encompassing all its applications within the medical field, to achieve a high level of scientific competence. They serve as a valuable resource for supplying medical, service-oriented, academic, and other community institutions, contributing to the development of these organizations and keeping pace with scientific progress and advancement across various domains.

1- Educational Institution	**University of Mosul/ College of Science**
2- University Department	**Department of Medical Physics**
3- Name of the academic program	**Medical Physics Science**
4- Name of Certificate	**Bachelor of Science**
5- Mode of Study	**Courses**
6- Accreditation Program	**ABET**
7- Other External effects	**--------**
8- Date of Description Preparation	**1/3/2023**
9- Objectives of Academic Program	**Access of National Classification**
10- Required Education Outputs and Methods of learning and teaching and assessment	**Success of Four Years of Study + Graduation Research + Summer Training**
A- Knowledge & Understanding	**1- Exams** **2- Daily Homework**
B- Subject-related Skills	**1- Ability to work in a multidisciplinary team**

	2- Ability to communicate constructively
C- Skill of Thinking	**1- Discussion** **2- Assignments** **3- Laboratory Reports** **4- Scientific Reports**
D- Methods of teaching and Learning	**1- Blended learning through Electronic lectures, and Physical attendance lessons and daily homework and discussions** **2- Electronic lectures (pdf), Online Meeting, Videos Uploading, Practical Experiments, Applications, Homework and Scientific Discussions**
E- Methods of Assessment	**Exams, Daily Homework, Assignments, Discussions, Lab. Reports and Graduation Research**
11- General and transferable skills (other skills related to employability and personal development)	**1- Ability to work in a multidisciplinary team** **2- Ability to communicate constructively**
12- Planning for Personal Development	**Extra-curricular Activity**
13-Admission criterion (setting the regulations related to admission to the college or institute)	**1- Wish + Average Mark of High School** **2- Central Admission of Higher Education & Scientific Rsearch**
14- most important sources of information about the program	**The student's guide for central admission prepared by the ministry**
15- Structure of the Program	**The program consists of four years (with 8 semesters), i.e. each year there are two semesters**

First Level

First Semester

number of units	Practical hours	Theoretical hours	The Subjuct in English Languge	.No
3	2	2	Mechanics (1)	1
3	2	2	Electricity and Magnetism	2
3	2	2	Analytical Chemistry	3
2	--	2	Mathematics (1)	4
3	2	2	General Biology (1)	5
1	2	--	Computer Science (1)	6
2	--	2	Arabic Language	7
1	--	1	Human Rights	8
units 18	Total units for first semester			

Second Semester

number of units	Practical hours	Theoretical hours	The Subjuct in English Languge	.No
3	2	2	Mechanics (2)	1
3	2	2	Biophysics	2
3	2	2	Organic Chemistry	3
2	--	2	Mathematics (2)	4
3	2	2	General Biology (2)	5
1	2	--	Computer Science (2)	6
2	--	2	English (1)	7
1	--	1	Democracy	8
units 18	Total units for second semester			

Second Level

First Semester

number of units	Practical hours	Theoretical hours	The Subjuct in English Languge	No.
3	2	2	Heat and Thermodynamic	1
3	2	2	Optics	2
3	2	2	Biostatistics	3
2	--	2	Mathematics (3)	4
3	2	2	Atomic Physics	5
1	2	--	Computer Science (3)	6
3	2	2	Physiology	7
2	--	2	Electromagnetic Waves	8

20 units	Total units for first semester

Second Semester

number of units	Practical hours	Theoretical hours	The Subjuct in English Languge	No.
3	2	2	Medical Imaging	1
3	2	2	Molecular Biology	2
3	2	2	Bioelectronics	3
2	--	2	Mathematics (4)	4
2	--	2	Healthy Culture	5
1	2	--	Computer Science (4)	6
2	--	2	English (2)	7
2	--	2	Phonetics Science	8
units 18	Total units for second semester			

Third Level

First Semester

number of units	Practical hours	Theoretical hours	The Subjuct in English Languge	.No
3	2	2	Medical Physics (1)	1
3	2	2	Anatomy (1)	2
2	--	2	in Medicine Quantum Mechanics	3
2	--	2	Medical Terminology	4
3	2	2	Physics of Diagnostic Radiology (1)	5
3	2	2	Laser Basics	6
3	2	2	Analog Electronics	7
2	--	2	Optional (1)	8
units 21	Total units for first semester			

Second Semester

number of units	Practical hours	Theoretical hours	The Subjuct in English Languge	No.
3	2	2	Medical Physics (2)	1
3	2	2	Anatomy (2)	2
3	2	2	Biochemistry	3
3	2	2	Physics of Nuclear Medicine	4
3	2	2	Medical Laser Applications	5
2	--	2	English (3)	6
3	2	2	Digital Electronics	7
2	--	2	Optional (2)	8
units 22	Total units for second semester			

Fourth Level

First Semester

number of units	Practical hours	Theoretical hours	The Subjuct in English Languge	.No
3	2	2	Medical Physics (3)	1
3	2	2	Medical Image Processing and Analysis	2
3	2	2	Medical Instrumentation Physics	3
3	2	2	Radiotherapy Physics	4
2	--	2	English (4)	5
2	4	--	Research Project	6
2	--	2	Optional (3)	7
units 18	Total units for first semester			

Second Semester

number of units	Practical hours	Theoretical hours	The Subjuct in English Languge	.No
3	2	2	Medical Physics (4)	1
3	2	2	Neurophysics	2
2	--	2	Material Science and Nanotechnology	3
2	--	2	Biomaterials	4
2	4	--	Research Project	5
2	--	2	Optional (4)	6
units 14	Total units for second semester			

Graduation research is recorded at four units at the end of the year

The Total Number of Graduation Units : 36 + 38 +43 +32 = 149 UNITS

16- Certificates and watches Approved	Bachelor's degree requires (x) credit hours	Units 149