Al MUSTAQBAL UNIVERSITY

(جامعة المستقبل)

First Cycle – Bachelor's degree (B.Sc.) – Medical physics

بكالوريوس علوم - فيزياء طبية

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1. Mission & Vision Statement

1- The department aims to graduate medical professionals who are capable of designing various systems of medical physics technologies and analyzing their components.

2- Operating and maintaining the medical laboratory equipment used in hospitals and advanced laboratories.

3- Building and rehabilitating an integrated scientific department based on outstanding scientific experiences that align with the labor market and meet the needs of scientific institutions, while adhering to scientific methods that keep pace with and compete with similar departments in universities. This is built upon the Science direction of the Ministry.

4- A new and qualitative addition to the field of medical physics by following the goals of systematic scientific methods, well-studied qualitative research, medical laboratories, and experienced academic staff. This includes training specialists in medical physics

to achieve a high level of scientific and technical skills, contributing to meeting the needs of the labor market, and advancing in this field.

5- A graduate of medical physics is responsible for analyzing the results obtained from devices

6- Adopting modern teaching strategies to develop students' creativity skills and utilizing them in their professional field through practical application.

2. Program Specification

Programme code:	BSc-MPH	**ECTS**	240
Duration:	4 levels, 8 Semesters	**Method of Attendance:**	Full Time

Science Program in Medical Physics involves in the application of radiation physics in medicine. The program emphasizes on producing graduates who are capable of developing and applying sciences of diagnostic imaging physics, radiotherapeutic physics and nuclear medicine physics in diagnosis and treatment of diseases in a safe use approach. The program focuses on the student-centered and outcome-based education to stimulate self-development of knowledge through interactive lecture, problem-based discussion, case study, laboratory, and clinical practice. At the end, graduates will become a knowledgeable scholar and a medical physicist with high professional skill and high moral and ethical principles. Currently the radiation technology in medicine continues to change rapidly, with proper great in depth of teaching and learning, the graduates will play a key role to be a quality assurance staff who will guarantee that the quality, safety and outcome for patient care in the clinic are achieve professional standard.

3. Program Objectives

1- Graduating and qualifying a specialized staff in the field of medical physics who have the ability to provide high-quality medical services in the field of diagnosis and treatment.
2- Medical Physics is concerned with all therapy modalities, including photon, electron, particle therapy, as well as thermal therapies. Surgical excision uses ultrasound waves and also includes computed tomography (CT) scanning, radiography, and endoscopy, as well as ultrasound, magnetic resonance imaging (MRI), electrical impedance, and nuclear medicine imaging.
3- Medical Physics keeps track of updates related to methodological studies, virtual clinical trials, and radiation therapy
4- Medical physics works on developing algorithms and devices by measuring experimental and computational (ionizing or non-ionizing) doses.
5- Medical physics is involved in improving treatment, analyzing its results, and accurately characterizing the biological effects of the treatment.
6- Contribute to the development of scientific and healthcare research, opening new horizons and concepts in scientific research, and having the ability to work effectively in the field of healthcare and acquire administrative and scientific skills in this field.
7- Methods of using radioactive isotopes, due to their crucial role in internal organs, aid in identifying important physiological variables such as blood flow and metabolic rates

4. Student Learning Outcomes

Faculty preparation	Specialization	Academic title and name

1- A graduate of medical physics should have knowledge of the normal structure and functions of the human body and of the major biological systems.
2- A graduate of medical physics should have knowledge of radiation, radioactive activity, dose measurement, and medical devices.
3- Practicing radiation safety and requirements of radiation shielding.
4- A graduate of medical physics should have knowledge of medical imaging and related devices

Outcome1: A graduate of medical physics has knowledge about the normal structure and functions of the human body and of the major biological systems.

Outcome2: The ability to perform the clinical support procedures required of a medical physicist.

Outcome3: knowledge of radiation, radioactive activity, dose measurement, and medical devices.

Outcome4: The ability to Practice radiation safety and requirements of radiation shielding.

Outcome5: A graduate of medical physics should have knowledge of medical imaging and related devices

5. Academic Staff

11. Faculty members				
Academic title and name	Specialization		Faculty preparation	
	general	private	angel	lecturer

Academic title and name	Specialization	Specialization		
Dr. Anis Ali Hassan Alwan .A	Physics	Radiation physics	√	
Ibrahim Jabbar Dr. Ferial	Electrical power engineering	Artificial Intelligence Engineering	√	
Dr. Duaa Jaafar Diaa Jaber	Physics	Laser Physics	√	
Dr. Karim Abis Handoul Hussein	Veterinary medicine	Animal surgery	√	
Dr. Sarah Mahdi Obaid	Physics	nuclear physics	√	
Dr. Mukhallad Ali Zabala	Physics	Medical Physics	√	
M.M. Israa Hussein Amwishi	Electrical Engineering	industrial electronics	√	
M.M. Mortada Sabry Muslim	Information Technology	networks	√	
M.M. Mohammed Mahdi Saeed-Abbas Al	Geological Sciences	sediments	√	
M.M. Fatima Makki Shaalan	law	Criminal law	√	
M.M. Hawazin Fadel Ne'mah	Physics	Medical Physics	√	
M.M. Ali Salman Hammadi Abis	Physics	Laser Physics	√	
M.M. Ammar Karim Kazim	Materials Engineering	polymers	√	
M.M. Ali Jafar Obaid	Physics	nuclear physics	√	
M.M. Samaher Saad Hadi Adhab	Agricultural Sciences	medicinal plants	√	
M.M. Sakina Talib Khairallah	law	Criminal law	√	
M.M. Fatima Basem Yassin Khader	Agricultural Sciences	Soil and water resources	√	
Shimaa Firas -M.M. Al Reda Muhammad	business management	business management	√	
Ibrahim M.M. Mustafa Amir	computer technologies	artificial intelligence	√	
M.M. Lubna Ali Jalil Shanawa	computer technologies	communication	√	
M.M. Najwan Thaer Ali	Computer Science	Networks and Communications	√	
M.M. Duaa Saad Shaker	Physics	Laser Physics	√	
Dr. Saba Abdul Zahra Obaid Rubaie-Al	Physics	Medical Physics		√
M.M. Murtadha Kazim Salman	Physics	Medical Physics		√
D. Nihad Abdel Amir Saleh	Physics	Medical Physics		√

Jalil Ahmed M.M. Sara	Physics	Medical Physics		√

6. Credits, Grading and GPA

Credits

(Name) University is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   CGPA of a 4-year B.Sc. degree:

   CGPA = [(1st ^{m}odule score x ECTS) + (2nd ^{m}odule score x ECTS) + ……] / 240

7. Curriculum/Modules

Semester	1	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type
One	1	MPH11001	Mechanics 1	ميكانيك 1	63	112	175	7.00	C
	2	MPH11002	Electricity	كهربائية	63	112	175	7.00	C
	3	CS11004	Mathematics	رياضيات	33	117	150	6.00	B
	4	QU06	Arabic language	اللغة عربية	32	18	50	2.00	B
	5	CS11008	Analytic Chemistry	كيمياء تحليلية	63	87	150	6.00	B
	6	QU02	Democracy and human	الديمقراطية و حقوق الانسان	32	18	50	2.00	B
					286	464	750	30.00	

Semester	2	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type
Two	1	MPH12103	Mechanics 2	ميكانيك 2	63	112	175	7.00	C
	2	MPH12004	Biophysics	فيزياء حياتية	63	112	175	7.00	C
	3	MPH12005	General Biology	احياء عام	48	102	150	6.00	B
	4	QU04	Computer	حاسوب	47	28	75	3.00	B
	5	QU01	English	اللغة الإنكليزية	32	18	50	2.00	B
	6	CS12004	Organic Chemistry	كيمياء عضوية	32	93	125	5.00	B
					285	465	750	30.00	

Semester	3	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type
Three	1	MPH23006	Magnetism	مغناطيسية	63	87	150	6.00	C
	2	MPH23007	Optics	بصريات	63	87	150	6.00	C
	3	MPH23008	Atomic molecular Physics	فيزياء ذرية و جزيئية	63	87	150	6.00	C
	4	MPH23009	Electromagnetic Waves	موجات كهرومغناطيسية	32	118	150	6.00	C
	5	MPH23010	Matlab	ماتلاب	48	27	75	3.00	B
	6	CS23005	Physiology	فسلجة	48	27	75	3.00	B
					317	433	750	30	

Semester	4	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type
Four	1	MPH24011	Medical Imaging	تصوير طبي	63	87	150	6.00	C
	2	MPH24012	Heat and Thermodynamic	حرارة وثرموداينمك	63	87	150	6.00	C
	3	MPH24013	Analog Electronics	الكترونيات تماثلية	63	87	150	6.00	C
	4	MPH24014	Phonetics Science	علم الصوتيات	32	93	125	5.00	C
	5	CS24007	Molecular Biology	بايلوجي جزيئي	48	27	75	3.00	B
	6	MPH24015	Healthy Culture	ثقافة صحية	32	18	50	2.00	B
	7	QU08		جرائم نظام البعث في العراق	32	18	50	2.00	B
					333	417	750	30.00	

Semester	5	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type
Five	1	MPH35016	Digital Electronics	الكترونيات رقمية	63	87	150	6.00	C
	2	MPH35017	Physics of Diagnostic Radiology	فيزياء الاشعة التشخيصية	63	87	150	6.00	C
	3	MPH35018	Laser Basics	اساسيات الليزر	63	87	150	6.00	C
	4	MPH35019	Biostatistics	احصاء حيوي	63	87	150	6.00	C
	5	MPH35020	Medical Terminology	مصطلحات طبية	32	43	75	3.00	B
	6	MPH35021	Optional 1	اختياري 1	32	43	75	3.00	B
					316	434	750	30.00	

Semester	6	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type
Six	1	MPH36122	Medical Physics 1	فيزياء طبية 1	63	87	150	6.00	C
	2	MPH36023	Physics of Nuclear Medicine	فيزياء الطب النووي	63	87	150	6.00	C
	3	MPH36124	Medical Laser Applications	تطبيقات الليزر الطبية	63	87	150	6.00	C
	4	MPH36025	Quantum Mechanics in Medicine	ميكانيك الكم في الطب	62	88	150	6.00	C
	5	CS26008	Anatomy	تشريح	48	27	75	3.00	B
	6	MPH36026	Optional 2	اختياري 2	32	43	75	3.00	B
					331	419	750	30.00	

Semester	7	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type
Seven	1	MPH47027	Radiation physics	فيزياء اشعاعية	63	87	150	6.00	C
	2	MPH47028	Medical Image Processing and Analysis	تحليل ومعالجة الصور الطبية	63	87	150	6.00	C
		MPH47029	Bioelectronics	الالكترونيات الحيوية	63	87	150	6.00	C
	3	MPH47030	Medical Instrumentation Physics	فيزياء الاجهزة الطبية	32	68	100	4.00	C
	5	MPH47031	Optional 3	اختياري 3	32	68	100	4.00	B
	6	MPH47032	Research project	مشروع البحث	32	68	100	4.00	C
					285	465	750	30.00	

Semester	8	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type
Eight	1	MPH48133	Medical Physics 2	فيزياء طبية 2	63	87	150	6.00	C
	2	MPH48034	Radiotherapy Physics	فيزياء العلاج الاشعاعي	63	87	150	6.00	C
	3	MPH48035	Material Science and Nanotechnology	علم المواد والنانوتكنلوجي	63	87	150	6.00	C

	4	MPH48036	Healthy physics	فيزياء صحية	32	68	100	4.00	C
	5	MPH48037	Research Project	مشروع البحث	32	68	100	4.00	C
	6	MPH48038	Optional 4	الاختياري 4	32	68	100	4.00	C
					285	465	750	30.00	

8. Contact

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