

Medical Imaging

Program name	Medical Imaging
Degree of program (BA, B.Sc., Diploma)	Bachelor Degree
Department	Medical Imaging
Faculty	Medical Allied Sciences
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Program Coordinator	Mr. Mysara Rumman e-mail: mysara@paluniv.edu.ps

1. About the Program

Medical imaging plays an essential role in medicine. Imaging modalities are considered important tools for doctors and surgeons in diagnosing and monitoring diseases and injury. The role of medical imaging is an essential component of the patient treatment process. It is mainly responsible for screening patients and producing high-quality medical images to determine the diagnoses and monitor injury and disease. Medical imaging includes the specialty of x-ray film, as well as specializations in ultrasound, computed tomography (CT), nuclear medicine and magnetic resonance imaging (MRI).

In addition, medical image technology is used in a wide range of examinations and procedures. The Medical Imaging Degree enables student to provide treatment to patients of all types and ages, from youth to elders, as well as patients with special needs such as impaired vision or hearing. Students learn how to treat patients with a variety of conditions, such as injuries or those suffering from infectious diseases.

The Medical Imaging program aims to prepare students for careers in medical imaging at the bachelor degree level. Students will study theoretical and practical courses in the specialization in addition to the requirements of the University so that students are qualified to work in hospitals as technicians in medical imaging.

2. The required hours of the bachelor degree program

142 credit hours are needed to satisfy the Degree Requirements as follows:

University Requirements		College Requirements		Specialization Requirements		Free course	Total
Compulsory	Elective	Compulsory	Elective	Compulsory	Elective		143
24	3	22	3	81	4	6	

3. Admission and Continuity Requirements :

- Students are accepted from the scientific, industrial and agricultural branches of high school that attained a minimum 70% final grade.
- Continuation in the specialization requires that the student maintain a minimum grade of 70% in the following courses:
 - 530201: Introduction to Medical Imaging
 - 530211: Radiation Physics
 - 530231: Radiographic Positioning One - Theory

4. Outcomes:

o Upon graduation, the student is expected to be able to:

1. Describe how medical images are created using X-rays by applying knowledge that involves tissue ionization.
2. Practice medical imaging techniques within training centers
3. Compare different medical imaging techniques in terms of the components of the devices used and their methods of production
4. Test and design new imaging methods for each imaging unit to suit the patients and the policy of the work center.

5. Jobs Opportunities :

Potential Places of Employment	Potential Jobs
<ol style="list-style-type: none"> 1. Magnetic Resonance Unit 2. Ultrasound Unit 3. Computer Tomography Unit 4. Digital Radiography 5. Nuclear Imaging Unit 6. Photovoltaic Emission Tomography Unit 7. Plain X-Ray Unit 8. Dental Unit 9. Angiography Unit 10. Cardiac Catheterization Unit 11. Mammography Unit 12. Bone Density Measurement Unit 13. Interventional Radiology Unit 14. Radiotherapy Department. 	<ul style="list-style-type: none"> ● Radiologic Technologists ● Chief Technologist ● Private Clinics

6. The Bachelor Degree in physiotherapy is awarded upon the successful completion of 142 credit hours, in accordance with the conditions specified in regulations for awarding of the Bachelor's Degree at the College of Allied Medical Science, as follows:

First: University Requirements (27 credit hours) which include:

a- Compulsory Courses (24 credit hours) :

Course Number	Course Title	Number of Credits			Prerequisite
		Cr. Hours	Theoretical	Practical	
110101	Arabic Language Skills 1	3	3	0	
120101	English Language Skills 1	3	3	0	
110102	Arabic Language Skills 2	3	3	0	110101
120102	English Language Skills 2	3	3	0	120101
130300	Community Service	1	1	0	
112101	Physical Education	1	1	0	
113200	Palestinian Cause	3	3	0	
151102	Islamic Culture	3	3	0	
410131	Basics of Computer & Programming	3	3	0	
410211	Critical Thinking Skills	1	1	0	

B- Elective requirements (3 credit hours) to be chosen from courses offered by university colleges other than college of Allied Medical Science.

Course No.	Course Title	Credit Hours		Prerequisite
		Theoretical	Practical	
142211	The Arab World & Contemporary Challenges	3		
132101	Introduction To Psychology	3		
130101	Introduction To Sociology	3		
120106	Spanish	3		
120105	Italian	3		
120104	French	3		
120208	Hebrew (1)	3		
110104	Library Science	3		
651202	Family Systems in Islam	3		
651101	Biography of the Prophet	3		
540102	Nutrition Science	3		
510121	Introduction to Health Care	3		
310111	First Aid	3		
420102	Ethics in the Information Age			
310302	Democracy, Human Rights & International Humanitarian Law	3		
210260	Law In Our Life	3		

Second:

1-College compulsory requirements (22 credit hours) :

Course No.	Course Title	Credit Hours		Prerequisite
510171	Physics for Medical Sciences	3		
510174	Physics for Medical Sciences- Lab		1	
510175	Biology for Medical Sciences	3		
510176	Biology for Medical Sciences- Lab		1	
510162	Chemistry for Medical Sciences	3		
510163	Chemistry for Medical Sciences- Lab		1	
510102	Medical Terminology	2	-	
510120	Human Physiology I	2	-	510175
510220	Human Physiology II	2	-	510120
540224	Statistics & Research Methods	3	-	410141
540101	Medical Ethics	1	-	

2-College elective requirements (3 credit hours) :

Course No.	Course Title	Credit Hours		Prerequisite
410141	Calculus	3		
510141	Math	3		
510111	First Aid	3		
510340	Advanced Rehabilitation in Orthopedics	3		

Third: Department requirements (76 credit hours) as follows:

a. Compulsory courses(80 credit hours) :

Course No.	Course Title	Credit Hours		Prerequisite
		Theoretical	Practical	
530201	Introduction to Medical Imaging	3		
530211	Radiation Physics	3	0	510171
530215	Human Anatomy 1	2	0	510175
530310	Radiation Protection 1	3	0	530211
530231	Radiographic Positioning 1 – Theory	3	0	530201
530221	Patient care in Radiography	3	0	530201
530225	Human Anatomy 2	2	0	Human Anatomy 1
530331	Radiographic Positioning 2 – Theory	3	0	530231
530235	Radiographic Positioning 1 – Practical	0	2	530231
530250	General Pathology	2	0	Human Anatomy 2

530372	Radiographic Anatomy	2	0	Human Anatomy 2
530233	Radiation Equipment and Exposure	3	0	530211
530382	Sectional Anatomy	2	0	50372
530332	Radiographic Positioning 3 – Theory	3	0	530331
530335	Radiographic Positioning 2 – Practical	0	2	530331
530320	Radiographic Pathology	2	0	530372
530311	Digital Image Processing	2	0	410131
530322	Digital Image Processing – MAT Lab	0	1	410131
530427	P A C S	1	0	410131
530381	Contrast Media in Medical Imaging	1	0	5101
530350	Medical Imaging Physics	3	0	530211
530380	Medical Imaging Pathology	2	0	Radiographic Pathology
530344	Radiographic Positioning 4 – Theory	3	0	530332
530336	Radiographic Positioning 3 – Practical	0	2	530332
530431	Principles of Oncology	3	0	510220
530432	Trauma and Emergency Imaging	2		
530421	C T	3	0	Sectional Anatomy – Medical Imaging Physics
530433	Nuclear Medicine Imaging	3	0	530211+ Medical Imaging Physics
530415	M R I	3	0	Sectional Anatomy – Medical Imaging Physics
530413	U S	3	0	Sectional Anatomy – Medical Imaging Physics
530416	Radiation Therapy	1	0	530421
530440	Cardiac Imaging	1	0	Radiographic Positioning 4 – Theory
530435	Dental Radiography	2	0	Principles of Oncology
530400	Seminar	1	0	540224
530450	Advance Practicum 1	0	2	530415+530421
530460	Advance Practicum 2	0	2	530415+530421

b. Elective requirements (4 credit hours). Students must choose 4 courses out from the 5 courses below

Course No.	Course Title	Credit Hours		Prerequisite
		Theoretical	Practical	
530384	Breast Imaging	1	0	530332
530386	Pediatric Radiography	1	0	530332
530442	Radiobiology	1	0	Radiographic Positioning 4 – Theory
530437	Interventional and Vascular Radiology	1	0	Principles of Oncology
530444	Neuro-Functional Imaging	1	0	

c. Free courses : All students are required to successfully complete (6) credit hours from any program All students must submit an examination in Arabic and English. A student who fails to succeed in one or both tests must take a remedial course in Arabic or English or both outside the study plan. The remedial courses will not be included in the overall GPA

7. Training

The medical imaging program is mainly based on the purpose of enabling students to clinically practice the basics of medical imaging that were studied at the university at different training centers starting from the second academic year.

1 - Academic Year II / First Semester – Radiographic Positioning 1 / Practical - 2 credit hours with 150 training hours training in the training center (Radiology departments in accredited hospitals for training). Where the student trains on: Chest imaging, abdomen and upper limbs including shoulder joint.

2 - Academic Year II / Second Semester - Radiographic Positioning 2 / Practical - 2 credit hours with 150 training hours at the training center (Radiology departments in accredited hospitals for training). Where the student trains on: - Imaging of the spine, pelvis, and lower limbs

3 - Academic year III / first Semester - Radiographic Positioning 3 / practical - 2 credit hours with 150 training hours at the training center (radiology departments in accredited hospitals for training). Where the student trains on: - Skull imaging, facial bones, sinuses, emergency patients. Pediatric Radiography and Special Procedures.

4 - Academic year IV / First semester - Practical training - 3 credit hours with 150 training hours at the training center (Radiology departments in accredited hospitals for training). Where the student trains on:

- Advanced imaging equipment including tomography, ultrasound and magnetic resonance imaging.

8. Seminars

The graduate student may enroll in the course "graduation project" after successfully completing 100 hours. The student then chooses a research topic in coordination with their supervisor.

9. Educational support facilities

Facilities and laboratories: specialized training classrooms.

Medical Imaging Program - Plan 2020

First Year

Fall Semester

510171	Biology for Medical Sciences	3
510174	Biology for Medical Sciences - Lab	1
510175	Physics for Medical Sciences	3
510176	Physics for Medical Sciences - Lab	1
510302	Medical Terminology	2
530201	Introduction to Medical Imaging	3
120101	English Language Skills 1	3

Spring Semester

510162	Chemistry for Medical Sciences	3
510163	Chemistry for Medical Sciences - Lab	1
510101	Ethics for Health Professions	1
510120	Human Physiology 1	2
530215	Human Anatomy 1	2
530211	Radiation Physics	3
110101	Arabic Language Skills 1	3

Summer Semester

510141	General Mathematics	3
***	Free Elective Course	3

Second Year

Fall Semester

530233	Radiation Equipment & Exposure	3
530231	Rad. Positioning 1 – T	3
530221	Patient care in Radiography	3
530225	Human Anatomy 2	2
510220	Human Physiology 2	2
120102	English Language Skills 2	3
130300	Community Service	1

Spring Semester

530310	Radiation Protection 1	3
530331	Rad. Positioning 2 – T	3
530235	Rad. Positioning 1 – P	2
530250	General Pathology	2
530372	Radiographic Anatomy	2
410131	Computer & Programming	3
112101	Physical Education	1

Summer Semester

113200	Palestinian Cause	3
***	Free Elective Course	3

Third Year

Fall Semester

530382	Sectional Anatomy	2
530332	Rad. Positioning 3 – T	3
530335	Rad.2 – P	2
530320	Radiographic Pathology	2
530311	Digital Image Processing	2
530322	Digital Image Processing –Lab	1
530427	P A C S	1
530381	Contrast Media in Imaging	1

Spring Semester

530350	Medical Imaging Physics	3
530380	Medical Imaging Pathology	2
530344	Rad. Positioning 4 – T	3
530336	Rad. Positioning 3 – P	2
530384	Breast Imaging	1
530386	Pediatric Radiography	1
151102	Islamic Culture	3
410211	Critical Thinking Skills	1

Summer Semester

110112	Arabic Language Skills 2	3
***	Free Elective Course	3

Fourth Year

Fall Semester

530431	Principles of Oncology	3
530421	C T	3
530433	Nuclear Medicine Imaging	3
530432	Trauma and Emergency Imaging	2
530442	Radiobiology	1
530437	Interventional & Vascular Imaging	1
540224	Research Methods and Statistics	3
530450	Advance Practicum 1	2

Spring Semester

530444	Functional Imaging	1
530415	M R I	3
530413	U S	3
530422	Radiation Therapy	2
530440	Cardiac Imaging	1
530435	Dental Radiography	1
530400	Seminar	1
530460	Advance Practicum 2	2

Summer Semester

University Req. 27 (C. 24 - E. 3)-College Req. (C. 22 -E. 3)-Department Req. 85 (C. 81-E. 4)-Free Hrs. 6 - **Total: 143 C.Hrs**