



iraqi Republic
Ministry of Higher Education and Scientific Research
Al-Ayen Iraqi University
College of Health and Medical Technologies
Department of Radiology Technologies



Academic Program Description

Department of Radiology Technologies

Department of Radiology Technologies

2025-2024

Academic Program Description

University Name: Al-Ayen Iraqi

Faculty/Institute: College of Health and Medical Technologies

Scientific Department: Radiology Technology Department

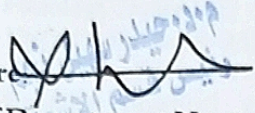
Academic or Professional Program Name: Bachelor of Radiologic Technology

Final Certificate Name: Bachelor of Radiologic Technology

Academic System: Blended system; First, second, and third stages follow a semester system; Fourth stage follows an annual system

Description Preparation Date: 12/ 2024

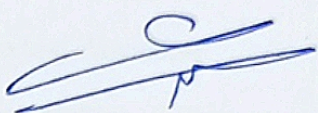
File Completion Date: 1 / 2025

Signature: 

Head of Department Name:

Dr. Hayder Suhail Najm

Date: 9/4/2025

Signature: 

Scientific Associate Name:

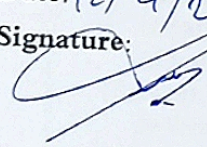
Date: 12/4/2025

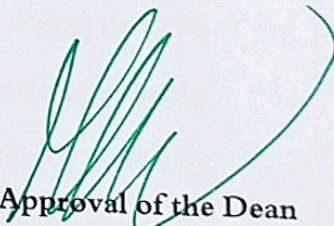
The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 12/4/2025

Signature: 


Approval of the Dean

1. Program Vision

Leadership in preparing specialists in radiology technology by providing innovative education that supports academic and research excellence, and by graduating qualified professionals who contribute to meeting the demands of the labor market.

2. Program Mission

We strive to provide distinguished academic and practical education in the field of Radiologic Technology through updated study programs that rely on advanced theoretical and practical teaching, in addition to comprehensive field training. We aim to prepare specialized professionals capable of efficiently utilizing the latest medical technologies, while supporting scientific research and innovation to meet the needs of the healthcare sector and society.

3. Program Objectives

1. Developing curricula and educational programs in the field of Radiologic Technology to meet the requirements and needs of the labor market.
2. Advancing scientific research and practical scientific activities in the field of radiology and medical imaging, and supporting graduation projects and research that contribute to the development of healthcare services.
3. Enhancing the program's role in serving the community through effective partnerships with healthcare institutions and continuous engagement with graduates to monitor their professional career paths.
4. Developing the scientific and technical capabilities and skills of teaching and technical staff to keep pace with global advancements in Radiologic Technology.
5. Implementing a comprehensive system for feedback and periodic evaluation to ensure continuous improvement and development in academic and administrative performance.
6. Applying Iraqi quality standards to achieve academic accreditation and instill a culture of quality in all departmental activities.
7. Enhancing the academic and professional excellence and competitiveness of the department locally and nationally.

4. Program Accreditation

There is no accreditation

5. Other external influences

There are no external influences

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	8	16	9.7%	
College Requirements	9	27	16.36%	
Department Requirements	35	122	73.94%	
Summer Training	"Two months during the summer vacation for the second and third academic stages."			
Other	--	--	--	

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
First Year / First Course	MTRA1101	Anatomy of the skeleton	2	3
First Year / First Course	MTRA1102	General physics	2	3
First Year / First Course	MTRA1103	General physiology	2	3
First Year / First Course	MTRA1104	Biology	2	3
First Year / First Course	MTRA1105	General chemistry	2	3
First Year / First Course	MTRA1106	Computer principles 1	1	2
First Year / First Course	MTRA1107	Human rights and democracy	2	–

First Year / First Course	MTRA1108	English Language	2	–
First Year / Second Course	MTRA1201	Anatomy of body systems	2	3
First Year / Second Course	MTRA1202	Physics of Atom	2	3
First Year / Second Course	MTRA1203	Systemic physiology	2	3
First Year / Second Course	MTRA1204	Radiobiology	2	4
First Year / Second Course	MTRA1205	Principles of Nursing	2	4
First Year / Second Course	MTRA1206	Computer principles 2	1	2
First Year / Second Course	MTRA1207	Medical Terminology	2	–
First Year / Second Course	MTRA1208	Arabic Language	2	–
Second Year / First Course	MTRA2101	Conventional Radiological Equipment Techniques	2	5
Second Year / First Course	MTRA2102	Radiographic techniques for the upper limbs	2	5
Second Year / First Course	MTRA2103	Special radiological Procedures of Gastrointestinal tract and bones	2	5
Second Year / First Course	MTRA2104	Radiographic anatomy of the head and upper limbs	2	4
Second Year / First Course	MTRA2105	Fundamentals of radio- physics	2	3
Second Year / First Course	MTRA2106	Fundamentals of radiation protection	2	3
Second Year / First Course	MTRA2107	Ba'ath Party crimes	2	–
Second Year / Second Course	MTRA2201	Computed tomography Equipment Techniques	2	5
Second Year / Second Course	MTRA2202	Radiographic techniques for lower limbs	2	5
Second Year / Second Course	MTRA2203	Special radiological Procedures of the biliary and reproductive system	2	5
Second Year / Second Course	MTRA2204	Radiological anatomy of the lower limbs	2	4
Second Year / Second Course	MTRA2205	Physics of computed tomography	2	3
Second Year / Second Course	MTRA2206	Computer and Artificial Intelligence	2	4
Second Year /	MTRA2207	Arabic Language	2	–

Second Course				
Third Year / First Course	MTRA3101	Equipment techniques of magnetic resonance imaging	2	4
Third Year / First Course	MTRA3102	Radiographic techniques of head and spinal cord	2	4
Third Year / First Course	MTRA3103	Special radiological procedures of the head , breast and respiratory system	2	4
Third Year / First Course	MTRA3104	Radiological anatomy of brain and spinal column	2	2
Third Year / First Course	MTRA3105	General Pathology	2	2
Third Year / First Course	MTRA3106	Physics of magnetic resonance	2	1
Third Year / First Course	MTRA3107	Biological Radiation hazards	2	2
Third Year / First Course	MTRA3108	Computer applications1	2	1
Third Year / Second Course	MTRA3201	Ultrasound Equipment techniques	2	4
Third Year / Second Course	MTRA3202	Radiographic techniques of thorax and abdomen	2	4
Third Year / Second Course	MTRA3203	Special radiological procedures of the cardiovascular and central nervous system	2	4
Third Year / Second Course	MTRA3204	Radiological anatomy of thorax and abdomen	2	2
Third Year / Second Course	MTRA3205	Systemic Pathology	2	2
Third Year / Second Course	MTRA3206	Physics of ultrasound	1	3
Third Year / Second Course	MTRA3207	Computer applications2	2	1
Fourth Year	MTRA4101	CT scan	2	5
Fourth Year	MTRA4102	Magnetic resonance imaging	2	5
Fourth Year	MTRA4103	Ultrasound imaging	2	5
Fourth Year	MTRA4104	Principles of medicine and surgery	2	3
Fourth Year	MTRA4105	Biostatistics and computer applications	2	4
Fourth Year	MTRA4106	Professional ethics	2	-
Fourth Year	MTRA4107	Research project	-	6

8. Expected learning outcomes of the program

Knowledge

Upon completing the program, the graduate should be able to

1. Recognize fundamental principles through a solid understanding of both theoretical and practical aspects, forming a strong foundation for lifelong learning and continuous development while enhancing students' analytical and critical thinking skills.
2. Be proficient in the fundamentals and techniques of medical imaging, including X-ray, magnetic resonance imaging (MRI), ultrasound, and computed tomography (CT).
3. Understand radiation physics and occupational safety, covering radiation interactions with matter, principles of radiation production, and modern radiation protection techniques.
4. Comprehend medical terminology and radiological diagnostics, including understanding and using medical terms related to medical imaging in the workplace to enhance professional communication skills.

Skills

"The graduate must possess the following skills:"

1. Operate radiological equipment and adjust its settings: Includes handling various radiographic imaging techniques according to the patient's condition.
2. Analyze the quality of radiographic images and apply safety standards: Ensures images are free from defects and adheres to radiation safety procedures.
3. Communicate effectively and interact with patients and the medical team: Includes explaining imaging procedures and collaborating with physicians to ensure accurate diagnosis.
4. Acquire scientific research skills and contribute to professional development: Involves applying

Ethics

1. Commit to professional ethics and confidentiality: Includes respecting patient privacy and adhering to ethical standards.
2. Demonstrate professionalism and teamwork: Involves collaborating with multidisciplinary medical teams to ensure comprehensive healthcare.
3. Engage in self-development and maintain work-life balance: Includes building self-confidence, improving personal skills, and ensuring job stability.
4. Respect cultural diversity and participate in community engagement: Involves promoting values

9. Teaching and Learning Strategies

☐ Theoretical and Practical Education

- Theoretical lectures using PowerPoint, discussion sessions, and group assignments.
- Practical sessions in laboratories to practice operating equipment and training in radiographic image analysis.

☐ Problem-Based Learning (PBL)

- Presenting real-life medical cases and engaging students in analyzing them and proposing appropriate solutions using radiological techniques.

☐ Clinical and Field Training

- Providing hands-on training opportunities in hospitals and healthcare centers to gain direct experience in real work environments.

☐ Scientific Research and Self-Learning

- Encouraging students to conduct research in radiological techniques and publish their findings in conferences and scientific journals.
- Enhancing self-learning skills by providing access to digital resources and electronic libraries.

☐ Technology-Enhanced Learning

- Utilizing e-learning platforms to promote interactive learning through distance education, in addition to using video lectures

10. Evaluation methods

1. **Written Examinations:** Include midterm and final exams to assess theoretical understanding and academic comprehension.
2. **Practical Assessment:** Involves practical and applied tests to evaluate clinical and technical skills in laboratory and hospital settings.
3. **Oral Examinations:** Used to assess students' ability to analyze, discuss, and apply scientific reasoning.
4. **Scientific and Research Reports:** Require students to prepare specialized studies and reports that reflect their research and analytical abilities.
5. **Class Participation and Academic Activities:** Include in-class interaction, problem-solving, and conducting presentations (seminars).
6. **Continuous Assessment:** Through quizzes, assignments, and periodic discussions to monitor academic progress.

11. Faculty					
Faculty Members					
Academic Rank	Specialization		Special Requirements/ Skills (if applicable)	Number of the teaching staff	
	General	Special		Staff	Lecturer
Professor	Physics	Laser Physics		-	1
Professor	Microbiology	Bacteriology		-	1
Assistant Professor	Physics	Radiation Physics		1	--
Assistant Professor	Radiology Technology	Diagnostic Radiology Technology		--	1
Lecturer	Radiology Technology	Diagnostic Radiology Technology		4	--
Lecturer	Radiology Technology	Interventional Radiology		1	--
Lecturer	Physics	Medical Physics		1	--
Lecturer	Physics	Theoretical Physics		3	--
Lecturer	Chemistry	Analytical Chemistry		--	1
Lecturer	General Medicine	Clinical Immunology		--	1
Lecturer	Mathematics	Applied Mathematics		1	--
Assistant Lecturer	Radiology Technology	Diagnostic Radiology Technology		--	2
Assistant Lecturer	Nursing	Nursing Administration		1	1
Assistant Lecturer	Business and Economics	Accounting		1	--
Assistant Lecturer	Engineering	Computer Engineering		1	--
Assistant Lecturer	Physical Therapy	-		--	1
Assistant Lecturer	Arabic Language	-		1	--
Assistant Lecturer	Law	International Law		--	1

Professional Development

Mentoring new faculty members

The **Radiologic Technology Department** is committed to preparing a comprehensive orientation program for new faculty members to ensure their effective integration into the academic environment and enhance their teaching and research performance. This program includes:

1. **Introduction to Regulations and Policies:** Providing a detailed explanation of the academic and administrative regulations adopted by the university and the department, ensuring compliance with institutional standards.
2. **Teaching and Assessment Methods:** Clarifying teaching methodologies and assessment approaches, with a focus on modern teaching strategies and continuous evaluation techniques.
3. **Laboratory and Equipment Training:** Familiarizing new faculty members with educational laboratories and the equipment used in practical teaching, along with guidelines on how to utilize them effectively in the learning process.
4. **Provision of Educational Resources:** Supplying course materials, academic references, and curricula to ensure that teaching content aligns with academic standards and required quality benchmarks.
5. **Academic Supervision and Student Advising:** Integrating faculty members into the academic advising system to help them provide guidance and support to students while monitoring their academic progress.
6. **Research Participation:** Encouraging faculty members to engage in research teams and enhance their academic contributions by supporting research projects and scientific publications.

Professional development of faculty members

The **Radiologic Technology Department** strives to enhance the professional development of faculty members by organizing regular workshops and training sessions aimed at improving their academic and research competencies. These programs include:

1. **Enhancing Teaching Skills:** Training faculty members on modern teaching methods and e-learning techniques to ensure the delivery of high-quality educational content.
2. **Curriculum Development:** Updating academic courses in accordance with the latest scientific and technological advancements in medical imaging.
3. **Improving Assessment Methods:** Introducing innovative strategies to measure learning outcomes and ensure the quality of students' academic performance.
4. **Advancing Scientific Research:** Training faculty members in research methodologies and publication in peer-reviewed journals, as well as providing a supportive research environment and funding for research projects.
5. **Utilizing Advanced Equipment:** Preparing faculty members to use the latest technologies and advanced medical imaging devices effectively in teaching and practical training.
6. **Participation in Academic Events:** Encouraging faculty members to attend local and international scientific conferences to facilitate knowledge exchange and professional development.

12. Acceptance Criterion

1. A centralized admission system supervised by the Ministry of Higher Education to ensure transparency.
2. Admission requirements are limited to graduates of the biological sciences track from high school.
3. The required GPA is determined annually based on the number of applicants and the department's capacity.
4. The intake capacity is set to ensure an educational environment that aligns with quality standards.

13. The most important sources of information about the program

1. **Official Sources:**
 - Student handbook and approved curricula.
 - The department and university's official website.
2. **Academic Sources:**
 - Research conducted by faculty members and recent scientific studies.
 - Accreditation reports and quality assurance in education.
3. **Professional and Practical Sources:**
 - Training agreements with healthcare institutions.
 - Surveys and feedback from students and graduates.

14. Program Development Plan

1. **Updating curricula** to keep pace with the latest advancements in medical imaging and radiologic technologies.
2. **Enhancing laboratory facilities** by equipping them with modern technology to improve students' hands-on training experience.
3. **Expanding practical training** through stronger partnerships with hospitals and healthcare institutions.
4. **Refining assessment methods** by incorporating practical exams, research reports, and presentations.
5. **Enhancing teaching strategies** by integrating e-learning with traditional education for a more effective learning experience.
6. **Promoting scientific research** and encouraging graduation projects that lead to innovative solutions.
7. **Establishing postgraduate programs** to offer specialization opportunities and ensure sustainable professional development for graduates.

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
First Year First Course 2024-2025	MTRA1101	Anatomy of the skeleton	Basic	*	*		*			*	*		*	*	
	MTRA1102	General physics	Basic	*	*	*		*	*				*		
	MTRA1103	General physiology	Basic	*		*	*			*	*		*	*	
	MTRA1104	Biology	Basic	*		*	*		*	*			*		
	MTRA1105	General chemistry	Basic	*	*	*			*		*		*	*	
	MTRA1106	Computer principles 1	Basic	*		*		*		*					
	MTRA1107	Human rights and democracy	Basic	*			*					*			*
	MTRA1108	English Language	Basic	*			*			*					
First Year Second Course 2024-2025	MTRA1201	Anatomy of body systems	Basic	*	*		*			*	*		*	*	
	MTRA1202	Physics of Atom	Basic	*	*	*			*		*		*		
	MTRA1203	Systemic physiology	Basic	*	*		*			*	*		*	*	
	MTRA1204	Radiobiology	Basic	*	*		*		*		*		*		
	MTRA1205	Principles of Nursing	Basic	*	*		*			*	*		*	*	

	MTRA1206	Computer principles 2	Basic	*		*		*		*			*		
	MTRA1207	Medical Terminology	Basic		*		*			*	*		*	*	
	MTRA1208	Arabic Language	Basic	*			*				*		*		
Second Year First Course 2024-2025	MTRA2101	Conventional Radiological Equipment Techniques	Basic	*	*		*	*	*			*	*		
	MTRA2102	Radiographic techniques for the upper limbs	Basic	*	*		*	*	*	*		*	*		
	MTRA2103	Special radiological Procedures of Gastrointestinal tract and bones	Basic	*	*		*	*	*	*		*	*		
	MTRA2104	Radiographic anatomy of the head and upper limbs	Basic	*	*		*	*	*	*		*	*		
	MTRA2105	Fundamentals of radio- physics	Basic	*		*	*		*		*		*		*
	MTRA2106	Fundamentals of radiation protection	Basic	*		*	*		*		*		*		*
	MTRA2107	Ba'ath Party crimes	Basic	*			*				*	*	*		*
	MTRA2201	Computed tomography Equipment Techniques	Basic	*	*		*	*	*		*	*	*		

Second Year Second Course 2024-2025	MTRA2202	Radiographic techniques for lower limbs	Basic	*	*		*	*	*	*		*	*		
	MTRA2203	Special radiological Procedures of the biliary and reproductive system	Basic	*	*		*	*	*	*		*	*	*	
	MTRA2204	Radiological anatomy of the lower limbs	Basic	*	*		*	*	*	*		*	*		
	MTRA2205	Physics of computed tomography	Basic	*		*	*		*		*		*	*	
	MTRA2206	Computer and Artificial Intelligence	Basic	*							*		*		*
	MTRA2207	Arabic Language	Basic	*			*	*			*		*		
Third Year First Course 2024-2025	MTRA3101	Equipment techniques of magnetic resonance imaging	Basic	*	*		*	*	*		*	*	*		
	MTRA3102	Radiographic techniques of head and spinal cord	Basic	*	*		*	*	*	*		*	*		
	MTRA3103	Special radiological procedures of the head , breast and respiratory system	Basic	*	*		*	*	*	*		*	*		

	MTRA3104	Radiological anatomy of brain and spinal column	Basic	*	*		*	*	*	*		*	*		
	MTRA3105	General Pathology	Basic	*			*			*	*	*	*		*
	MTRA3106	Physics of magnetic resonance	Basic	*		*	*		*		*		*	*	
	MTRA3107	Biological Radiation hazards	Basic	*		*	*		*		*		*		*
	MTRA3108	Computer applications1	Basic	*				*					*		
Third Year Second Course 2024-2025	MTRA3201	Ultrasound Equipment techniques	Basic	*	*		*	*	*		*	*	*		
	MTRA3202	Radiographic techniques of thorax and abdomen	Basic	*	*		*	*	*	*		*	*		
	MTRA3203	Special radiological procedures of the cardiovascular and central nervous system	Basic	*	*		*	*	*	*		*	*		
	MTRA3204	Radiological anatomy of thorax and abdomen	Basic	*	*		*	*	*	*		*	*		
	MTRA3205	Systemic Pathology	Basic	*			*			*	*	*	*		*
	MTRA3206	Physics of ultrasound	Basic	*		*	*		*		*		*	*	
	MTRA3207	Computer applications2	Basic	*				*					*		

Fourth Year 2024-2025	MTRA4101	CT scan	Basic	*	*		*	*	*	*	*	*	*	*	
	MTRA4102	Magnetic resonance imaging	Basic	*	*		*	*	*	*	*	*	*	*	
	MTRA4103	Ultrasound imaging	Basic	*	*		*	*	*	*	*	*	*	*	
	MTRA4104	Principles of medicine and surgery	Basic	*			*			*	*		*	*	
	MTRA4105	Biostatistics and computer applications	Basic	*				*	*				*	*	
	MTRA4106	Professional ethics	Basic	*			*			*		*	*	*	*
	MTRA4107	Research project	Basic	*	*	*	*	*	*		*		*	*	

- Please tick the boxes corresponding to the individual program learning outcomes under evaluation

