CIHAN UNIVERSITY-ERBIL

Bachelor's degree (B.Sc.) – Radiological Imaging Technologies

بكالوريوس علوم - تقنيات التصوير الشعاعي

Table of Contents

1. Mission & Vision Statement | **بيان المهمة والرؤية**
2. Program Specification | **مواصفات البرنامج**
3. Program (Objectives) Goals | **أهداف البرنامج**
4. Program Student learning outcomes | **مخرجات تعلم الطالب**
5. Academic Staff | **الهيئة التدريسية**
6. Credits, Grading and GPA | **الاعتمادات والدرجات والمعدل التراكمي**
7. Modules | **المواد الدراسية**
8. Contact | **اتصال**

1. Mission & Vision Statement

Vision Statement

To be a leading academic department recognized for excellence in radiological imaging education, research, and technological innovation. We aim to produce future-ready technologists who will shape the future of medical imaging by integrating cutting-edge technology, such as artificial intelligence, with human expertise, thus improving global healthcare standards.

Mission Statement

To educate and train highly skilled radiologic technologists who are proficient in the latest imaging technologies, ensuring that they contribute to the advancement of healthcare through ethical practice, innovation, and continuous professional development. The department is committed to fostering critical thinking, research, and collaboration in medical imaging for improved patient outcomes and enhanced diagnostic accuracy.

2. Program Specification

The Radiological Imaging Technologies Department offers a comprehensive program designed to equip students with the knowledge and technical expertise required in the ever-evolving field of medical imaging. The curriculum is carefully structured to cover a wide range of imaging modalities, including X-ray, MRI, CT, ultrasound, and nuclear medicine. Students are introduced to both the theoretical foundations and practical applications of each modality, enabling them to develop proficiency in image acquisition, analysis, and diagnostic techniques. Additionally, the program emphasizes radiation safety, patient care, and ethical practices to ensure that graduates are well-prepared for the healthcare environment.

The department also integrates emerging technologies, such as artificial intelligence (AI), into its courses to keep pace with advancements in medical imaging. AI integration in courses like mammography, ultrasound, and CT techniques enables students to understand the potential of automation and data analysis in improving diagnostic accuracy and efficiency. With a strong focus on hands-on experience and modern technology, the program aims to produce highly skilled radiological technologists who are ready to contribute to the healthcare sector and pursue further professional development in specialized fields.

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

3. Program Objectives

1. **Provide Comprehensive Education:**

Equip students with a strong foundation in radiologic sciences, including theoretical knowledge and hands-on skills in advanced imaging modalities such as MRI, CT, Ultrasound, and Nuclear Medicine.

2. **Integrate Technology and Innovation:**
   Foster the integration of emerging technologies, such as artificial intelligence and machine learning, into the curriculum to prepare students for future industry demands.
3. **Promote Research and Continuous Learning:**
   Encourage research initiatives and the pursuit of continuous learning, enabling students and faculty to contribute to advancements in medical imaging technologies and techniques.
4. **Prepare Ethical and Competent Professionals:**
   Develop highly competent professionals who adhere to the highest standards of ethics and patient care while working in interdisciplinary healthcare teams.
5. **Enhance Practical Skills:**
   Offer students extensive practical experience through clinical training in real-world settings to develop their diagnostic and technical abilities.
6. **Foster Collaboration and Global Awareness:**
   Encourage collaboration with healthcare providers, industry leaders, and academic institutions worldwide to expose students to global practices and innovations in radiology.
7. **Contribute to Healthcare Advancement:**
   Prepare graduates to contribute to improving healthcare quality by offering accurate, safe, and innovative diagnostic imaging services.

4. Student Learning Outcomes

Outcome 1

Master Radiological Techniques: Perform imaging procedures (X-ray, CT, MRI, Ultrasound) according to clinical protocols and industry standards**.**

Outcome 2

Apply Radiation Safety: Implement radiation protection strategies to minimize exposure for patients, staff, and oneself.

Outcome 3

Image Analysis: Assess and ensure the diagnostic quality of images, identifying artifacts and collaborating with healthcare providers.

Outcome 4

Use Emerging Technologies: Integrate AI and digital tools to enhance diagnostic accuracy and workflow efficiency in imaging.

Outcome 5

Patient Care: Provide compassionate care, ensuring patient comfort, clear communication, and safety during imaging procedures.

Outcome 6

Critical Thinking: Solve technical challenges in real-time and optimize imaging protocols based on clinical needs.

Outcome 7

Professionalism and Ethics: Demonstrate ethical practices, professionalism, and adherence to patient confidentiality in all clinical scenarios.

Outcome 8

Communication and Collaboration: Communicate effectively with patients and healthcare teams, and contribute to collaborative patient care.

Outcome 9

Research and Lifelong Learning: Engage in research activities and stay current with industry advancements through continuous learning.

Outcome 10

Ethical Use of AI: Apply AI responsibly, ensuring ethical considerations and maintaining human oversight in diagnostics.

Outcome 11

Global Perspective: Demonstrate cultural competence and awareness of international imaging standards.

5. Academic Staff

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6. Credits, Grading and GPA

Credits

Cihan University – Erbil 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 27 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. Credits, Grading and GPA

Semester 1 | 30 ECTS | 1 ECTS = 27 hr

Code	Module name (in English)	SSWL	USSWL	SWL	ECTS	Pre-request
CUE56001	Fundamentals of Radiology	103	86	189	7.00	
CUE56002	General Physics	75	89	162	6.00	
CUE56003	Chemistry	75	89	162	6.00	
CUE61001	General English	115	20	135	5.00	
CUE31001	Academic Computing	60	21	81	3.00	
CUE31002	Kurdistan Studies	44	37	81	3.00	

Semester 2 | 30 ECTS | 1 ECTS = 27 hr

Code	Module name (in English)	SSWL	USSWL	SWL	ECTS	Pre-request
CUE56011	Radiobiology and Radiation Protection	90	72	162	6.00	CUE56001
CUE56012	Medical Physics	75	60	135	5.00	CUE56002
CUE56013	AI in Medical Imaging	75	33	108	4.00	
CUE56014	Systematic Biology	75	33	108	4.00	
CUE56015	Medical Terminology	30	51	81	3.00	
CUE61002	Academic English	115	20	135	5.00	
CUE82001	Academic Debate	45	36	81	3.00	

Semester 3 | 30 ECTS | 1 ECTS = 27 hr

Code	Module name (in English)	SSWL	USSWL	SWL	ECTS	Pre-request
CUE56021	Principles of Diagnostic Imaging	90	72	162	6.00	CUE56001
CUE56022	Imaging Instrumentation	90	72	162	6.00	CUE56001
CUE56023	Regional Anatomy	75	60	135	5.00	CUE56014

CUE56024	**General Physiology**	**75**	**33**	**108**	**4.00**	**CUE56014**
CUE32022	**Basic Histology**	**75**	**33**	**108**	**4.00**	**CUE56014**
CUE56025	**Medical Ethics & Patient Care**	30	34	54	**2.00**	
CUE56026	**Communication Skills**	**45**	**36**	**81**	**3.00**	CUE61002

Semester 4 | 30 ECTS | 1 ECTS = 27 hr

Code	Module name (in English)	SSWL	USSWL	SWL	ECTS	Pre-request
CUE56031	**Digital Radiography**	**90**	**72**	**162**	**6.00**	**CUE56002**
CUE56032	**Systemic Physiology**	**75**	**89**	**162**	**6.00**	**CUE56024**
CUE56033	**Gross Anatomy (Systemic)**	**75**	**89**	**162**	**6.00**	**CUE56023**
CUE56034	**Dental Radiography**	**75**	**60**	**135**	**5.00**	**CUE56022**
CUE56035	**Radiographic Pathology**	**75**	**33**	**108**	**4.00**	**CUE56023 CUE56024**
CUE56036	**Basic Nursing and First Aid**	**60**	**21**	**81**	**3.00**	

Semester 5 | 30 ECTS | 1 ECTS = 27 hr

Code	Module name (in English)	SSWL	USSWL	SWL	ECTS	Pre-request
CUE56041	**Radiographic Positioning and Techniques (Peripheral Osseous)**	**75**	**87**	**162**	**6.00**	**CUE56031 CUE56023 CUE56033**
CUE56042	**Evidence-Based Imaging**	**75**	**87**	**162**	**6.00**	**CUE56023 CUE56031 CUE56035**
CUE56043	**Fluoroscopic Imaging**	**75**	**87**	**162**	**6.00**	**CUE56022**
CUE56044	**Ultrasound Physics**	**75**	**60**	**135**	**5.00**	**CUE56022**
CUE56045	**Clinical Placement I**	**90**	**18**	**108**	**4.00**	**CUE56022 CUE56023 CUE56031**

CUE32046	Biostatics	45	36	81	3.00	

Semester 6 | 30 ECTS | 1 ECTS = 27 hr

Code	Module name (in English)	SSWL	USSWL	SWL	ECTS	Pre-request
CUE56051	Radiographic Positioning and techniques (Central Osseous)	75	114	189	7.00	CUE56023 CUE 56031 CUE56033
CUE56052	Special radiographic procedure	75	89	162	6.00	CUE56043 CUE56045
CUE56053	Ultrasound techniques	75	89	162	6.00	CUE56044
CUE56054	Clinical Placement II	90	108	108	4.00	CUE56041 CUE56043
CUE56055	Quality Management in Medical Imaging	45	63	108	4.00	CUE56021 CUE56022 CUE56031 CUE56043
CUE56056	Research Methods and Ethics	45	36	81	3.00	CUE56042

Semester 7 | 30 ECTS | 1 ECTS = 27 hr

Code	Module name (in English)	SSWL	USSWL	SWL	ECTS	Pre-request
CUE56061	Computed Tomography-Physics	75	87	162	6.00	CUE56022 CUE56045
CUE56062	Magnetic Resonance Imaging-Physics	75	87	162	6.00	CUE56022 CUE56045
CUE56063	Special Radiological Procedures and Contrast Media (Elective)	75	33	108	4.00	CUE56043 CUE56052
CUE56064	Radiographic Cross-Sectional Anatomy	75	33	108	4.00	CUE56023 CUE56033 CUE56061
CUE56065	Clinical Placement III	90	18	108	4.00	CUE56051 CUE56052
CUE56066	Nuclear Medicine Technology (Elective)	75	33	108	4.00	
CUE56067	Pharmacology for Radiographers (Elective)	30	24	54	2.00	CUE56052 CUE56053

Semester 8 | 30 ECTS | 1 ECTS = 27 hr

Code	Module name (in English)	SSWL	USSWL	SWL	ECTS	Pre-request
CUE56071	Computed Tomography techniques and protocol	90	72	162	6.00	CUE56061
CUE56072	MRI-techniques and protocol	90	72	162	6.00	CUE56062
CUE56073	Graduation Project	30	105	135	5.00	
CUE56074	Mammography (Elective)	75	60	135	5.00	CU56022
CUE56075	Clinical Placement IV	90	18	108	4.00	CUE56071 CUE56072
CUE56076	Emergency Imaging (Elective)	75	33	108	4.00	CUE56055 CUE56065 CUE56074

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