



University of Information Technology and
communication

Intelligent Medical Systems Department
Student Guide

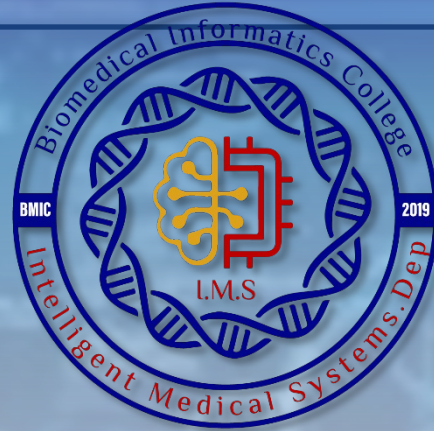
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University of Information Technology ad communication Biomedical Informatics College Intelligent Medical System Department

Student Guide

The Department of Intelligent Medical Systems at the College of Biomedical Informatics/University of Information and Communication Technology (UIT) is pleased to welcome and congratulate all new students on joining this pioneering discipline, which is one of the most advanced and innovative fields in Iraq and the region. The department represents an advanced response to the acceleration of digital transformation in the health sector and aims to prepare graduates armed with the knowledge and skills that enable them to integrate AI and biomedical sciences technologies to improve the quality of healthcare and promote innovation in medical fields.

About the Department of Intelligent Medical Systems



Intelligent Medical Systems

- The Department of Intelligent Medical Systems is a modern academic programme within Iraqi universities that brings together information technology, artificial intelligence and the biomedical sciences with the aim of improving the quality of health care.
- What distinguishes the Department is that it does not focus solely on training students to solve problems; it sets out to graduate a generation of thinkers and agents of change who are able to have a positive influence on society. Students are encouraged to question and to innovate, with the support of teaching staff who hold international experience.
- Teaching is built around applied projects, in which students take part in real-world challenges in cooperation with partners from both the public and private sectors, including a range of companies and institutions.
- Against a backdrop of rapid digital development, the Department offers an environment that stimulates scientific curiosity, entrepreneurship and discovery. Comfortable university accommodation is also provided for students from other governorates, so that they can study in settled circumstances.



Peace, mercy and blessings of God be upon you.

My dear students, my sons and daughters,

It gives me pleasure and honour to welcome you to the Department of Intelligent Medical Systems at the College of Biomedical Informatics, University of Information Technology and Communications. The Department awards a Bachelor's degree in Intelligent Medical Systems Science and is considered one of the modern and pioneering specialisations both locally and regionally; our blessed university had the distinction of being the first to establish it across our dear Iraq.

The Department's curriculum has been carefully designed to keep pace with the programmes adopted at the finest universities worldwide, and it is delivered by a select group of distinguished teaching staff, with the aim of enabling you to acquire the knowledge and skills required to work in this vital and rapidly developing field.

Among the most prominent subjects you will study are:

- Artificial intelligence and machine learning, for the development of intelligent medical systems.
- Deep neural networks, for the analysis and classification of large-scale medical data.
- Molecular biology, anatomy and genetics — the study of genes and their effect on health.
- The design of electronic health systems and the administration of health-care systems.
- The ethical dimensions of medical data analysis, including X-ray and MRI imaging.

The Department of Intelligent Medical Systems aspires to be a centre of excellence and innovation: supporting the development of health systems, strengthening scientific research, and meeting the needs of government institutions and the labour market, with the goal of raising the quality of health care in our beloved country.

We are here to accompany you on your academic journey, and we seek to be partners in building your professional future. Welcome to your new academic home; we wish you an academic year full of success and distinction.

With sincere greetings and appreciation...

A Word from the Head of Department



Dr. Zainab Numaan Al-Qudsi
Head of Intelligent Medical Systems
Biomedical Collage

Vision

The Department of Intelligent Medical Systems aspires to attain a leading and distinguished position, both locally and internationally, in the design and development of intelligent health systems, and to establish its role as a centre of academic and research excellence that keeps pace with global developments in artificial intelligence and biomedical informatics.

It further aims to meet the needs of government and private institutions and of the labour market with efficiency and a high degree of professionalism. The Department also seeks to promote rigorous scientific research and continuous innovation in the fields of digital medicine, intelligent medical analytics and smart health applications, thereby contributing to the building of an integrated digital health system founded on knowledge and artificial intelligence.

Mission

The Department believes in the importance of effective integration between information technology, artificial intelligence and the biomedical sciences, with the aim of developing intelligent health-care environments supported by advanced data analytics. This makes it possible to deliver precise and personalised care, to improve the efficiency of medical institutions, and to enhance patients' quality of life and health and well-being.

The Department is committed to contributing actively to the building of a comprehensive digital health system that supports the achievement of the sustainable development goals in the health sector and meets the health-care challenges of the future to the highest standards of quality, efficiency and innovation.



Strategic Objectives

The Department of Intelligent Medical Systems seeks to prepare graduates who are able to:

- Apply and develop advanced intelligent medical technologies and systems, and keep pace with rapid developments in the fields of digital health care and medical business intelligence.
 - Design and implement specialised medical software and applications that support modern health systems and contribute to improving the efficiency and quality of therapeutic and preventive services.
 - Collect, organise and analyse large-scale medical data (Big Data) using artificial intelligence and machine learning algorithms, in order to support scientific research, - uncover new knowledge, and achieve comprehensive and integrated health care.
- Strengthen scientific and research cooperation with the relevant health, industrial and academic sectors, both locally and internationally, so as to exchange expertise and localise innovative technologies.
- Develop the student's character, instil high ethical and humane values, and equip them with leadership skills, the ability to solve complex problems, and a commitment to quality standards and responsible professional conduct in the medical working environment.



Semester	No.	Updated Module Code	Previous Module Code	Module Name in English
One	1	ITC310000	BMI111	Biology
	2	ITC310011	BMI112	Computer Programming I
	3	ITC310020	BMI113	Computer Fundamentals
	4	ITC310030	IMS111	Mathematics
	5	ITC310040	IMS112	Introduction to Medical Informatics
	6	ITC000000	HRD111	Democracy and Human Rights

Semester	No.	Updated Module Code	Previous Module Code	Module Name in English
Two	1	ITC310012	BMI121	Computer Programming II
	2	ITC310050	IMS121	General Anatomy and Physiology
	3	ITC310060	IMS122	Molecular Biology
	4	ITC310070	IMS123	Logic Design
	5	ITC310080	IMS124	Medical Devices and Terminology
	6	ITC000031	ENG121	English Language I
	7	ITC000041	ARA121	Arabic Language I

First Stage



الخطة الدراسية قسم الأنظمة الطبية الذكية



Semester	No.	Updated Module Code	Previous Module Code	Module Name in English
Three	1	ITC310090	BMI211	Object Oriented Programming
	2	ITC310100	BMI212	Data Structures
	3	ITC310110	BMI213	Discrete Mathematics
	4	ITC310120	IMS211	Human Diseases for the Health Professions
	5	ITC310130	IMS212	Operating Systems
	6	ITC000010	BPC211	Crimes of the baath regime in Iraq

Semester	No.	Updated Module Code	Previous Module Code	Module Name in English
Four	1	ITC310140	IMS221	Biochemistry
	2	ITC310150	IMS222	Bioinformatics
	3	ITC310160	IMS223	Database Systems
	4	ITC310170	IMS224	Statistics and Probability
	5	ITC310180	DSE101	Data Science Ethics
	6	ITC000032	-	English Language II
	7	ITC000042	ARA221	Arabic Language II

Second stage



الخطة الدراسية قسم الأنظمة الطبية الذكية



Semester	No.	Updated Module Code	Previous Module Code	Module Name in English
Five	1	ITC310190	BMI311	Artificial Intelligence
	2	ITC310200	BMI312	Image Processing
	3	ITC310210	IMS311	Geographical Information Systems
	4	ITC310220	IMS312	Applications Development
	5	ITC310230	IMS313	Software Engineering
	6	ITC310240	IMS314	Computer Networks

Semester	No.	Updated Module Code	Previous Module Code	Module Name in English
Six	1	ITC310250	BMI321	Web Development
	2	ITC310260	BMI322	Machine Learning
	3	ITC310270	BMI323	Computer Vision
	4	ITC310280	IMS311	Embedded Systems
	5	ITC310290	IMS322	Mobile Applications
	6	ITC310300	IMS323	Wireless Sensor Networks

Third Stage





Semester	No.	Updated Module Code	Previous Module Code	Module Name in English
Seven	1	ITC310310	BMI411	Cloud Computing
	2	ITC310320	BMI412	Data Mining
	3	ITC310330	IMS411	Electronic Health Records
	4	ITC310340	IMS412	Deep Learning
	5	ITC310350	IMS413	Simulation and Modeling in Medical Applications
	6	ITC310361	BMI410	Final Project I

Semester	No.	Updated Module Code	Previous Module Code	Module Name in English
Eight	1	ITC310370	BMI421	Big Data Analytics
	2	ITC310380	BMI422	Information Security
	3	ITC310390	IMS421	Health Care Systems Administration
	4	ITC310400	IMS422	Human and Computer Interaction
	5	ITC310410	IMS423	Medical Multimedia
	6	ITC310362	BMI420	Final Project II

Forth Stage



Core Subject Areas

The specialisation in Intelligent Medical Systems allows students and graduates to build a broad base of knowledge covering the fields set out below. The curriculum has been designed with great care to equip students with the knowledge and skills required in this vital and evolving field, and the course of study combines computer science with the biomedical sciences.



Medical and Technology Ethics

Modules: Data Science Ethics · Healthcare Systems Administration · Information Security

Skills acquired:

Handling patient data ethically.

Familiarity with the laws and regulations relating to digital health.

Medical Image Processing

Modules: Image Processing · Computer Vision · Medical Multimedia

Skills acquired:

Understanding medical imaging techniques such as MRI and X-ray.

Analysing images using advanced software tools.

Artificial Intelligence and Machine Learning

Modules: Artificial Intelligence · Machine Learning · Deep Learning

Skills acquired:

- Developing intelligent algorithms and applying them in medical diagnosis.
- Using deep neural networks to analyse biological data.

Electronic Health Systems

Modules: Database Systems · Electronic Health Records · Wireless Sensor Networks · Cloud Computing · Web & Mobile Development

Skills acquired:

Designing and implementing health information management systems.

Protecting medical data in line with information security standards.

Biological Systems

Modules: Biology · Bioinformatics · Anatomy and Physiology · Molecular Biology · Human Disease

Skills acquired:

Understanding genes and their effect on health.

Grasping how biological systems work and how they respond to medicines and treatments.

Medical Data Analysis

Modules: Data Mining · Statistics and Probability · Computer Programming · Big Data Analytics

Skills acquired:

Applying statistics to the analysis of large data sets.

Using tools such as Python and R to mine medical information.

كادر قسم الأنظمة الطبية الذكية



Lect. Dr. Zainab Numan Al-Qudsi



• Lect. Dr. Dalia Samer Ismail Al-Dulaimi



م Lect. Dr. Dunya Hameed Hamid Alawi



Lect. Dr. Ahmed Wadi Shihab Mousa Al-Salihi



Lect. Dr. Munira Abd Hamdi Khalaf Al-Saedi



Asst. Prof. Dr. Heba Adel Mahdi



Lect. Dr. Mustafa Waleed Zughair



• Lect. Dr. Waleed Khalid Hussein Ali



Lect. Dr. Ahmed Majid Taha



Lect. Dr. Atyaf Sami Nouri

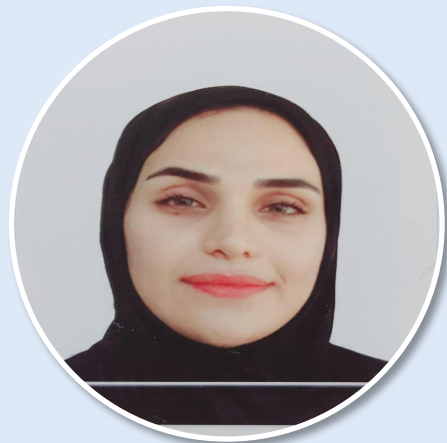


Lect. Dr. Mazin Hussein Abdullah



Lect. Dr. Ghaith Jaafar Saleh

Assistant Lecturers



Saraa Hussein Kridi



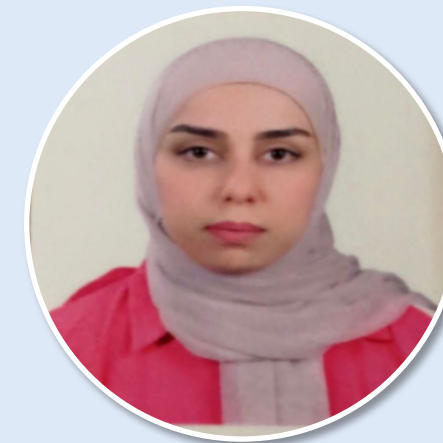
Aseel Abboud Jawad



Ali Hikmat Abbas



Zaid Ali Saeed



Fatima Qasim Abdulmajeed



Safana Zaid Ahmed



Shireen Nizar Qasim
Mohammed



Saja Ali Ahmed Mant Ali



Mu'tasim Amer Mohammed
Kadhim Al-Aithawi



Zainab Mustafa Ridha



Hiba Mohammed Wajeih
Majeed Al-Shammaa



Enas Adnan Mohammed
Hussein Al-Husseini

Assistant Lecturers



Rajwan Hamoud Shayaa



Mohammed Qasim Jawad



م Sara Mane Abdullah



Ruaa Safi Abdullah



Insam Ali Abdul-Amir



Duaa Jaafar Saleh Mahdi



Haider Talib Jawad Al-Sammak



Iman Dawood Salman Al-Jubouri



May Tariq Abdul-Hadi



Rana Abdul-Hameed Hadi



Haneen Farouk Abdul-Hameed



Noor Sabah Abbas Mutlak

Graduate Success Stories

Postgraduate Admissions

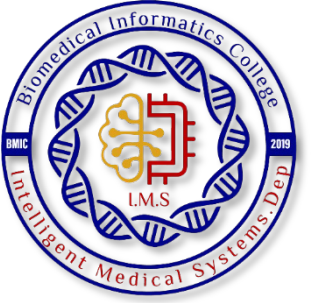
The College of Artificial Intelligence at the University of Baghdad has admitted a number of graduates of the Department of Intelligent Medical Systems and the Department of Bioinformatics through general admission to the Master of Science programme in artificial intelligence.

This success confirms that the College supports its students academically so that they may excel in the field of artificial intelligence, which has become the profession of the future. We are proud of our graduates, who continue their academic path with success — a testament to the quality of the education the Department provides.



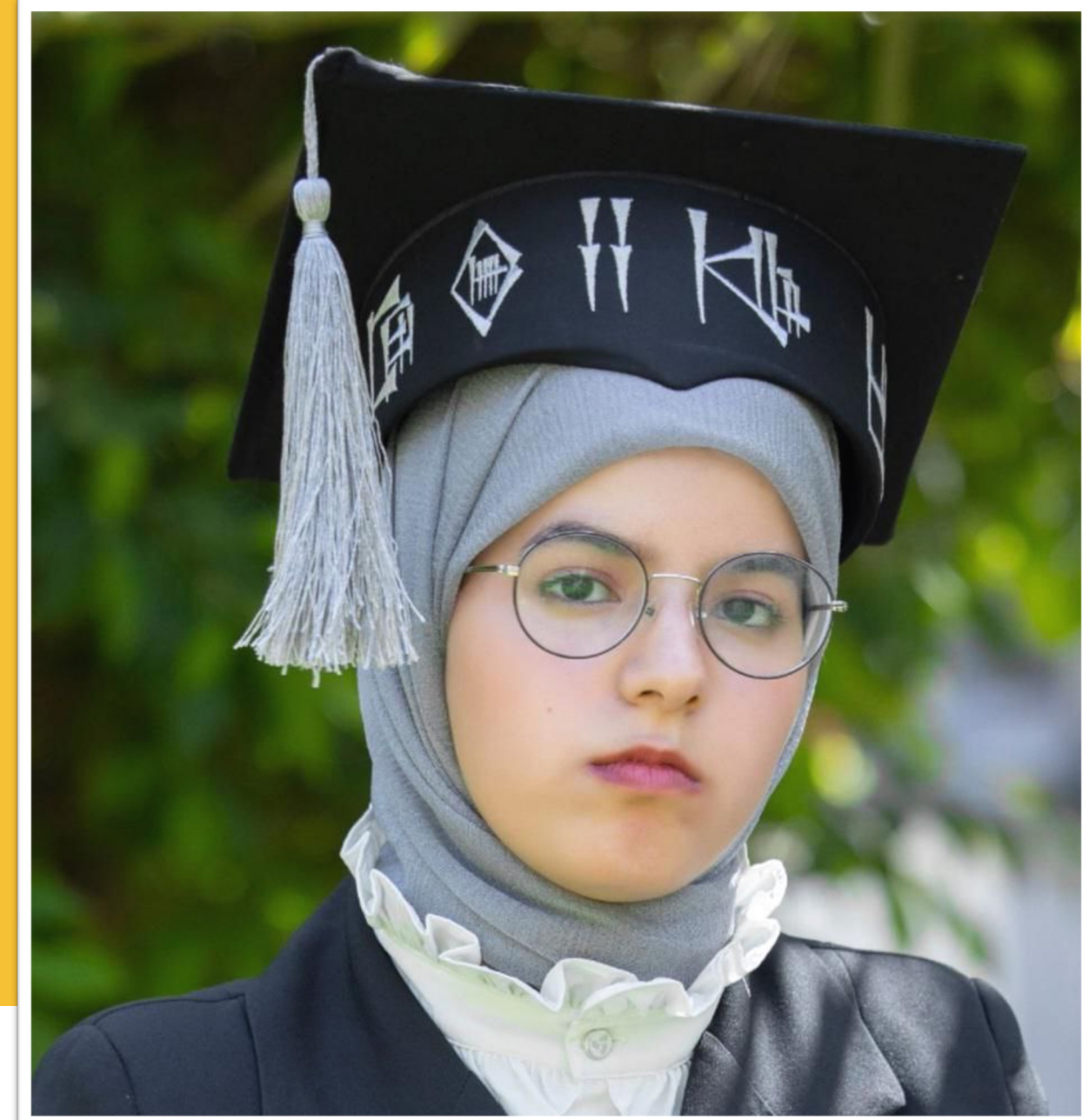
Top-Ranking Students of the Department

2023-2022



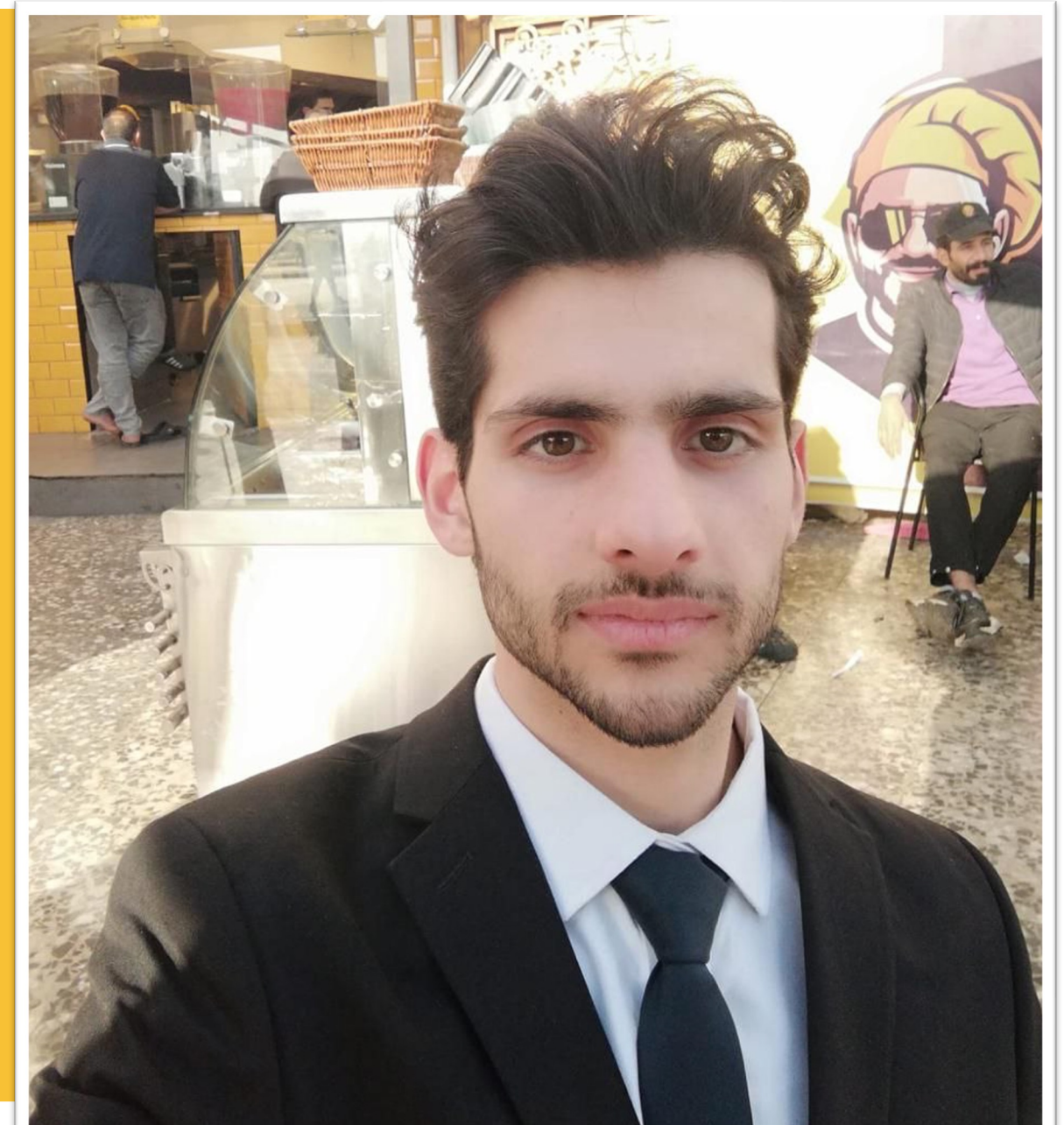
Top-Ranking Students of the Department

2024-2023



Top-Ranking Students of the Department

2025-2024





Career Opportunities — Locally and Internationally

First: Employment within Iraq

The need for specialised technical and medical expertise is expanding within Iraqi health institutions, which offers growing opportunities for graduates of this specialisation in:

- Hospitals and medical centres.
- Ministries and government institutions.
- Universities and research centres.
- Local health technology companies.





Second: Employment Internationally

Intelligent Medical Systems is among the fastest-growing specialisations worldwide, and it allows graduates to work in advanced fields, including:

Artificial intelligence and health technology companies

Developing machine learning models to improve medical diagnosis.

Analysing patient data using artificial intelligence for research centres or health insurance companies.

Applying augmented reality and artificial intelligence techniques to support virtual surgery.

International health institutions

The World Health Organization (WHO): projects in health data development and analysis.

The Mayo Clinic and the Cleveland Clinic: employing technical specialists to develop and update intelligent systems.

European and American hospitals: managing patient databases and developing Electronic Health Record (EHR) systems.

Major technology companies

Google Health, IBM Watson Health, Microsoft Cloud for Healthcare.

Working within teams that develop health platforms and improve deep learning algorithms.

Supporting data protection technologies and compliance with international regulations such as HIPAA and GDPR.

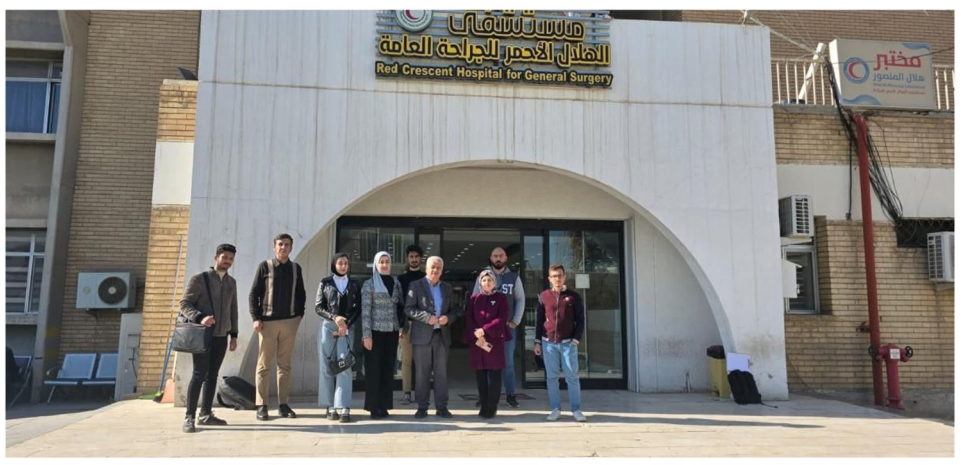
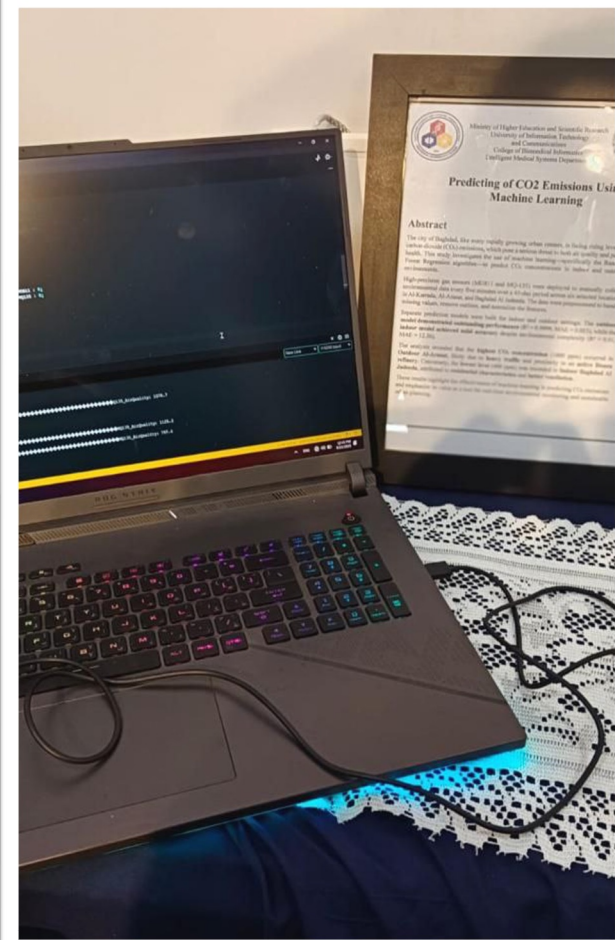
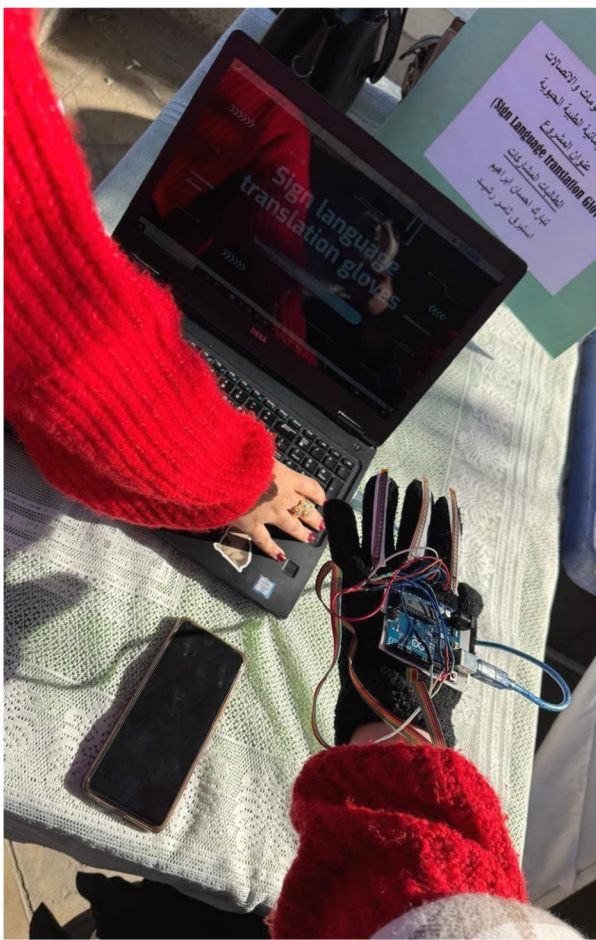
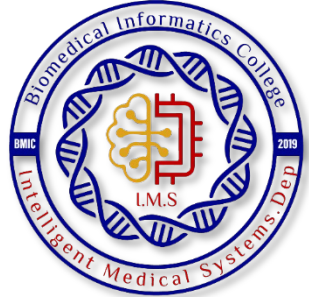
Research centres and higher education

Working as a researcher at international universities.

Contributing to international projects on intelligent diagnosis or genetically guided medicine.

Teaching on joint international programmes, or collaborating on research initiatives.

Moments We Take Pride In





A picture is worth a
thousand words.



Why Choose Intelligent Medical Systems?

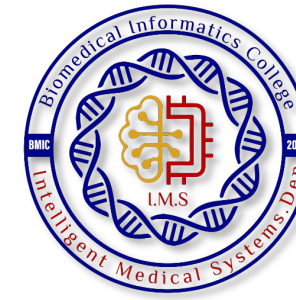
Your choice of the Department of Intelligent Medical Systems places you at the heart of one of the most modern and strategic specialisations — not only within Iraq, but across the countries of the world, as artificial intelligence and digital transformation grow ever more important in the health sector.

In the Department you will find all the support and guidance you need to realise your academic and professional ambitions and to develop your character at every level, both scholarly and human.

In closing, we urge you to invest your years of study with seriousness and enthusiasm, to take an active part in scientific, training and student activities, and not to hesitate to contact the academic and administrative staff so as to benefit from their experience and support.

We wish you a successful beginning, filled with achievement and accomplishment, in your university journey, and we hope you will be pioneers in building an intelligent and innovative medical future that serves our society and our country in the best way possible.

Welcome to the Department of Intelligent Medical Systems. We look forward to seeing you achieve and excel on your academic and professional journey.



Student Guide

Intelligent Medical System
Biomedical Informatics College
University of Information Technology
and Communication

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Numan Al-Qudsi

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