

**University of Information Technology
and Communications**



College of Medical Informatics

**Intelligent Medical Systems
Department**

جامعة تكنولوجيا المعلومات والاتصالات
كلية المعلوماتية الطبية الحيوية
قسم الأنظمة الطبية الذكية

*First Cycle – Bachelor's degree (B.Sc.) – Bachelor of Science in
Intelligent Medical Systems*

بكالوريوس علوم - الأنظمة الطبية الذكية



جدول المحتويات | 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

The Intelligent Medical Systems Department is aspired to be a distinguished section of the local and international level in the field of supporting and developing health systems and developing scientific research and meeting the needs of government institutions and the labor market with the aim of improving the quality of the health care.

Leadership and excellence in developing an educational and research program in the field of biomedical informatics to meet the requirements of governmental institutions and the labor market at the local and international levels.

Mission Statement

The Department of Intelligent Medical Systems is a new specialty in Iraqi universities that links the specialty of information technology and medical information systems in order to prepare a distinguished graduate possess the skills needed to keep pace with advances in information technology and mastering them to medical and biological uses and who are qualified for competing in the labor market at the local and international levels.

Providing academic and qualitative programs to prepare graduates with high skills in the field of bioinformatics to be able to contribute in solving the problems of society of an interlaced nature between information technology and biomedical.

2. Program Specification

Program code	BSc-IMS	ECTS	240
Duration	4 level, 8 Semesters	Method of Attendance	Full Time

Intelligent medical systems, a field that is used in the development of smart medical technologies and systems, and the ability to keep pace with the rapid developments in modern digital medical technologies. Studying in this department we strive to enable students to design and innovate under the close mentorship of our world-class faculty. Our students learn by doing from their very first class, and quickly

transition to authentic Technology projects with real-world corporate, government and nonprofit partners.

3. Program Goals

The Department of Intelligent Medical Systems seeks to prepare a distinguished graduate with the ability to:

1. Using and developing intelligent medical technologies and systems, and the ability to keep pace with the rapid developments in modern digital medical technologies, and competition in the labor market.
2. Assigning workers in the health field, including surgeons, analysts, and disease specialists, with systems that support their daily work and serve the achievement of results for medical diagnoses and analyzes in less time and with higher accuracy.
3. Collecting, discovering and analyzing medical data and knowing how to use it to serve scientific research and assist various agencies in achieving integrated health care.
4. Strengthening cooperation with interested sectors inside and outside Iraq.
5. Contributing to scientific research with various research ideas to assist to support and enhance the medical diagnosis systems.
6. Upgrading the student's personality by cultivating moral and human values and the national spirit and teaching them the skills of the art of leadership and searching for methods of solving problems and commitment to quality and professional behavior.
7. Providing students with the basic skills that enable them to deal with the environment and conditions of future work effectively, the ability to innovate and diversify, and to find important solutions to the problems they face accurately and quickly, given the importance of these two elements for the success of any medical diagnosis, whether it is manual or digital.
8. Creating an art of dialogue and constructive competition between students with each other, which will have a significant and distinguished reflection on professional work by promoting the spirit of teamwork and constructive professionalism.

4. Student Learning Outcomes

1- Intelligent medical systems aim to improve the quality of interventional health care in a way that depends on data collection, analysis, understanding and then employing smart systems that support specialists in this field, which will contribute to reducing medical errors resulting from the hard daily work of doctors and relying on self-assessment, which is not devoid of these errors.

2- The Department of Intelligent Medical Systems works to ensure that the academic program's outputs are based on principles and knowledge from a variety of research areas including artificial intelligence, medical image processing, data analysis, computer vision, bio-imaging, and medicine.

3- Committed to the ultimate goal of creating benefit for patients and medical staff, we aim to develop a holistic concept that spans three important topics: visualization and interpretation of data and real-time assistance and connectivity through a cycle of continuous learning: new spectral imaging technologies are enabled by machine learning deep learning as safe, reliable, and real-time imaging modalities during surgical interventions.

4- When interpreting perceived data in the context of available knowledge, our department specifically addresses common obstacles to clinical translation such as data scarcity, interpretability, and handling uncertainty.

5- With such cooperation with partners in the health and medical field, we can take advantage of these aforementioned methods to develop diagnostic assistance systems and digital analysis using various algorithms and tools in the field of information technology.

6- Transforming medical systems into a medical application machine available to all to facilitate the process of first diagnosis or self-examination by the patients themselves or by doctors who do not have sufficient experience to help them as a preliminary examination or preliminary diagnosis prepared for consultation by specialized centers.

7- One of the most important pillars that the department cares about is working to achieve high accuracy of digital examinations and analyzes, as well as reliable verification of the results of artificial intelligence algorithms and other tools that have been added to design and model various medical systems, applications and sites necessary to perform predictions, classifications of diseases and clinical diagnoses.

5. Academic Staff

Imad Qasim Habeeb | PH.D. in Computer Science/Information Technology | Assistant Prof.

Email: emadkassam@uoitc.edu.iq

Mobile no.: 07713758301

Muneera Abed Hmdi | PH.D. in Computer Science | Lecturer

Email: dr.muneera.alsaedi@uoitc.edu.iq

Mobile no.: 07715443193

Ahmed Wadi Shehab | PH.D. in Mathematics Science | Lecturer

Email: ahmed.shiahb@uoitc.edu.iq

Mobile no.: 07706857209

Mazin Hussein Abdullah | PH.D in Structural Engineering | Lecturer

Email: dr.mazin.hussein@uoitc.edu.iq

Mobile no.: 07700824636

Zainab N. Yousif | PH.D. in Computer Sciences | Lecturer

Email: dr.zainab.n.yousif@uoitc.edu.iq

Mobile no.: 07901740618

Dunia Hamid Hameed | Ph.D. in Computer Science | Lecturer

Email: dr.dunia.hamid@uoitc.edu.iq

Mobile no.: 07801881607

Atyaf Sami Noori | Ph.D. in Information Technology | Lecturer

Email: dr.atyaf.sami@uoitc.edu.iq

Mobile no.: 07803324711

Mustafa waleed zaheer | Ph.D. in Accounting | Lecturer

Email: mustafa92_waleed@yahoo.com

Mobile no.: 07704356009

Ruqaya Ali Hamza | Ph.D. Methods of teaching the Arabic Language | Lecturer

Email: baselzain79@gmail.com

Mobile no.: 07706207285

Hiba Adil Mhdi | Ph.D. in Arabic Language | Lecturer

Email: hiba.adil-bic@uoitc.edu.iq

Mobile no.: 07702596409

Mohammed Abdul Ameer Jabbar | MSc. In Computer Science | Assistant lecturer Email:

mohammedaji@uoitc.edu.iq

Mobile no.: 07702583237

Moatasim Amer Mohammed | MSc in Physics | Assistant lecturer

Email: moatasim.amer@uoitc.edu.iq

Mobile no.: 07901779304

Ahlam Rashid Kharbat | MSc in Computer Science | Assistant lecturer

Email: ahlamr.khekan@uoitc.edu.iq

Mobile no.: 07709761506

Ali Hikmat Abbas | M.Sc in Chemistry | Assistant lecturer

Email: ali.hikmat-bic@uoitc.edu.iq

Mobile no.: 07706552044

Dalya Samer Al-Delaimy | MSc. in Information Technology | Assistant lecturer

Email: daliadelaimy86@uoitc.edu.iq

Mobile no.: 07717222070

Safanah Zaid Ahmed | MSc Bioinformatic and Computational Biology | Assistant Lecturer

Email: Safanah.bayati-bic@uoitc.edu.iq

Mobile no.: 07838243183

Fatima Qassim Abdul-Majeed | MSc. in Physic | Assistant Lecturer

Email: fatima.kasim-bic@uoitc.edu.iq

Mobile no.: 07724019097

Aseel Abbood Jawad | MSc. in Mathematics Science | Assistant Lecturer

Email: aseel.abood-bic@uoitc.edu.iq

Mobile no.: 07714166845

Zaid Ali Saeed | MSc. in Computer Communication Engineering | Assistant lecturer

Email: zaid.ali-bmic@uoitc.edu.iq

Mobile no.: 07705334814

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:

$$\text{CGPA} = [(1\text{st module score} \times \text{ECTS}) + (2\text{nd module score} \times \text{ECTS}) + \dots] / 240$$

7. Curriculum/Modules

Semester 1: 30 ECTS: 1 ECTS = 25hrs

Module Code	Module Name in English	SSWL	USSWL	ECTS	Module Type	Pre-request
BMI111	Biology	63	87	6	C	/
BMI112	Computer Programming I	63	87	6	B	/
BMI113	Computer Fundamentals	63	37	4	B	/
IMS111	Mathematics	93	57	6	B	/
IMS112	Introduction to Medical Informatics	63	87	6	C	/
HRD111	Human Rights and Democracy	33	17	2	S	/

Semester 2: 30 ECTS: 1 ECTS = 25hrs

Module Code	Module Name in English	SSWL	USSWL	ECTS	Module Type	Pre-request
BMI121	Computer Programming II	63	87	6.00	B	BMI112
IMS121	General Anatomy and Physiology	63	62	5.00	C	IMS112
IMS122	Molecular Biology	63	62	5.00	C	BMI111
IMS123	Logic Design	63	62	5.00	B	/
IMS124	Medical Devices and Terminology	63	62	5.00	C	IMS112
ENG121	English I	33	17	2.00	S	/
ARA121	Arabic	33	17	2.00	S	/

Semester 3: 30 ECTS: 1 ECTS = 25hrs

Module Code	Module Name in English	SSWL	USSWL	ECTS	Module Type	Pre-request
BMI211	Object Oriented Programming	63	87	6.00	C	BMI121
BMI212	Data Structures	63	87	6.00	C	BMI121
BMI213	Discrete Mathematics	33	42	3.00	B	IMS111
IMS211	Human Disease for the Health Professions	63	87	6.00	C	IMS112
IMS212	Operating Systems	63	112	7.00	B	BMI121
BPC211	Baath Party Crimes	33	17	2.00	S	/

Semester 4: 30 ECTS: 1 ECTS = 25hrs

Module Code	Module Name in English	SSWL	USSWL	ECTS	Module Type	Pre-request
IMS221	Biochemistry	63	87	6.00	C	BMI111
IMS222	Bioinformatics	63	87	6.00	C	IMS112
IMS223	Database Systems	63	87	6.00	B	/
IMS224	Statistics and Probability	63	87	6.00	B	IMS111
DSE101	Data Science Ethics	33	67	4.00	S	/
ENG221	English II	33	17	2.00	S	ENG121

Semester 5: 30 ECTS: 1 ECTS = 25hrs

Module Code	Module Name in English	SSWL	USSWL	ECTS	Module Type	Pre-request
BMI311	Artificial Intelligence	63	62	5.00	C	BMI211
BMI312	Image Processing	63	62	5.00	C	BMI211
IMS311	Geographical Information Systems	63	62	5.00	C	/
IMS312	Applications Development	63	62	5.00	C	BMI212
IMS313	Software Engineering	63	62	5.00	B	BMI211
IMS314	Computer Networks	63	62	5.00	C	BMI113

Semester 6: 30 ECTS: 1 ECTS = 25hrs

Module Code	Module Name in English	SSWL	USSWL	ECTS	Module Type	Pre-request
BMI321	Web Development	63	62	5.00	B	BMI121
BMI322	Machine Learning	63	62	5.00	C	BMI311
BMI323	Computer Vision	63	62	5.00	C	BMI312
IMS311	Embedded Systems	63	62	5.00	C	IMS212
IMS322	Mobile Applications	63	62	5.00	C	IMS312
IMS323	Wireless Sensor Networks	63	62	5.00	C	IMS314

Semester 7: 30 ECTS: 1 ECTS = 25hrs

Module Code	Module Name in English	SSWL	USSWL	ECTS	Module Type	Pre-request
BMI411	Cloud Computing	63	62	5.00	E	BMI321
BMI412	Data Mining	63	62	5.00	C	BMI322
IMS411	Electronic Health Records	63	62	5.00	C	IMS223I, MS112

IMS412	Deep Learning	63	62	5.00	C	BMI311
IMS413	Simulation and Modeling in Medical Applications	63	62	5.00	E	BMI311, IMS314
BMI410	Final Project I	32	93	5.00	C	/

Semester 8: 30 ECTS: 1 ECTS = 25hrs

Module Code	Module Name in English	SSWL	USSWL	ECTS	Module Type	Pre-request
BMI421	Big Data Analytics	63	62	5.00	E	BMI411
BMI422	Information Security	63	62	5.00	C	IMS111
IMS421	Health Care Systems Administration	63	62	5.00	C	IMS112, IMS223, IMS314
IMS422	Human and Computer Interaction	63	62	5.00	C	IMS312, IMS322
IMS423	Medical Multimedia	63	62	5.00	C	BMI312
BMI420	Final Project II	32	93	5.00	C	BMI410

8. Contact

Program Manager:

Dunia Hamid Hameed | Ph.D. in Computer Science | Lecturer

Email: dr.dunia.hamid@uoitc.edu.iq

Mobile no.: 07801881607

Program Coordinator:

Atyaf Sami Noori | Ph.D. in Information Technology | Lecturer

Email: dr.atyaf.sami@uoitc.edu.iq

Mobile no.: 07803324711