

University of Mosul



Second Cycle – Bachelor's Degree (B.Sc.) – Computer Engineering

College of Engineering / Computer Engineering Department

كلية الهندسة / قسم هندسة الحاسوب



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1. Mission & Vision Statement

Vision Statement

The Department of Computer Engineering be distinguished by preparing qualified engineers and researchers with modern information to meet society's needs and create scientific research that maintains pace with advances in computer engineering and its applications.

Mission Statement

Distinguished education, solid scientific research, and community service.

2. Program Specification

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

The Department of Computer Engineering was established in 1998 for the purpose of graduating engineers specialized in computer engineering. This specialization includes the following studies: designing computer circuits, circuits needed to connect the computer with external accessories, building software needed to operate external accessories, computer networks, computer control, and real-time signal processing. Master's studies began in the department in 1997-1998, while doctoral studies opened in 2001.

The Department of Computer Engineering is equipped with a number of laboratories specialized in the fields of: microprocessors, communications, electrical, computer networks, real time, computer architecture, and a control laboratory.

The Master's study period is two calendar years: It consists of two semesters to complete (24-26) credits in addition to (10-12) units for the requirements of the research year. The doctoral study period is 3 years, which includes passing two semesters to finish (20-22) credits and then passing the comprehensive exam, then completing the thesis, which is equivalent to (38-40) credits. Therefore, the total study for a doctorate degree is 60 credits.

Computer department intends to achieve the following requirements:

- 1- Basic computer requirements: The student in the Department of Computer Engineering studies computer subjects as physical components and software as well, in a way that ensures the achievement of the department's goals through theoretical and laboratory and practical subjects and through graduation projects.
2. Basic engineering requirements: The student also studies basic subjects such as electronic and general electrical circuits first, and then the design and construction of computer hardware.
3. Supporting requirements: The study period is accompanied by the identification of supportive study subjects such as primary, analytical and applied mathematics for the first three years of the study period, in addition to the humanities subjects.

3. Program Goals

1. Preparing engineers with a high level of knowledge and skill capable of building computer systems, analyzing and developing them, while following up them after graduation.
2. Continuing to follow up the curricula to keep pace with scientific development in a manner that suits the needs of the labor market by adopting quality standards and using the latest methods.
3. Working to keep abreast of the latest scientific research in various specializations within the lecturers research and theses of postgraduate students.
4. Organizing seminars and holding scientific conferences and workshops with the colleges, government institutions and the private sector to solve problems and develop the work of these institutions.
5. Providing academic, technical and scientific consultations in the fields of computer engineering to all governmental and private sectors of society.
6. Guiding the students to teamwork, generating intrinsic motivation, keenness to find and understand the knowledge necessary to succeed in the tasks entrusted to them in the future, and aspiration to keep pace with the most prestigious scientific institutions in the field of computer engineering, and to adhere to professional ethics.

4. Student Learning Outcomes

Computer engineering is the study of the of all the computer fundamentals and principles. The preparation of graduates aware of the practical reality in the local and global markets is a basic requirement for the Department of Computer Engineering. The outcomes are often explained to graduates in different forms, whether theoretical or practical, as follows:

Outcome 1: Career Readiness and Lifelong Learning

Graduates will apply their knowledge for career advancement or further studies, with adaptability and commitment to lifelong learning. This aligns with the university's vision for knowledge excellence and the college's goal to prepare competitive, skilled graduates.

Outcome 2: Ethical Responsibility and Community Service

Graduates will act with integrity and contribute positively to society, supporting the university's values of social responsibility and the college's mission of ethical, community-oriented education.

Outcome 3: Innovation, Communication, and Collaboration

Graduates will be innovative problem solvers and effective team members, aligning with the university's mission of intellectual advancement and the college's focus on teamwork and creativity in diverse environments.

Outcome 4: Research and Technical Proficiency

Graduates will lead engineering projects and engage in applied research, supporting societal needs and sustainable development. This reflects both the university's emphasis on impactful research and the college's goal to address real-world challenges.

Outcome 5: An ability to identify, analyze, and solve complex engineering problems according to principles of engineering, science, and mathematics.

Outcome 6: An ability to acquire and apply new knowledge and use appropriate learning strategies.

Outcome 7: An ability to participate and work professionally and ethically in different projects to function on multi-disciplinary teams.

5. Academic Staff

Telephone number	Official email	General and specific specialization	Instructor's full name and
07707404377	shefa.dawwd@uomosul.edu.iq	هندسة الحاسوب / معمارية تطبيقات الزمن الحقيقي والشبكات العصبية	أ.د. شفاء عبدالرحمن داود سليمان الياسين
07701789998	ahmedalkababji72@uomosul.edu.iq	هندسة كهربائية / معالجة إشارة و زمن حقيقي	أ.د. احمد مأمون فاضل ياسين الكبابجي
07709638189	eng.salah@uomosul.edu.iq	هندسة الحاسوب / شبكات الحاسوب	أ.د. صلاح عبد الغني جaro حياوي العبادي
07736976886	rabeehagem@uomosul.edu.iq	هندسة الكترونيك واتصالات / اتصالات مطمورة لاسلكية	أ.د. ربيع موفق حاجم سلطان الشهاب
07740853128	mayada.faris@uomosul.edu.iq	هندسة الحاسوب / شبكات الحاسوب و الاتصالات	أ.م.د. ميادة فارس غانم محمد العمري
07701684414	turkan@uomosul.edu.iq	علوم الحاسوب / شبكات الحاسوب	أ.م.د. توركان احمد خليل حسن شمام
7713760841	f.abayaje@uomosul.edu.iq	هندسة حاسبات / هندسة شبكات الاتصالات	أ.م.د. فرات يونس عبدالرزاق
07713987505	shawkat.sabah@uomosul.edu.iq	هندسة الحاسوب / معمارية الحاسوب و الانظمة المعتمدة	أ.م.د. شوكت صباح خيرالله جاسم الربيعي
07729526888	amar.daood@uomosul.edu.iq	هندسة حاسوب/معالجة	أ.م.د. عمار ادريس داود

	edu.iq	اشارة و زمن حقيقي	الطائي
07714048756	ali.alsaegh@uomosul.edu.iq	هندسة الحاسوب / معالجة الإشارة	أ. م. د. علي مخلف أحمد أمين الصائغ
07701863318	akram.dawood@uomosul.edu.iq	هندسة الحاسوب/معالجة إشارة	أ.م. اكرم عبد الموجود داود جاسم الرعاش
07716895108	sahar.ahmed@uomosul.edu.iq	علوم حاسوب/ معالجة صور	أ. م. سحر خالد احمد محمود الحمالي
07702045228	dhafir.abdulfattah@uomosul.edu.iq	هندسة الحاسوب / معمارية الحاسوب	أ. م. د. ظافر عبد الفتاح عبد القادر أحمد النعمة
07736976893	inam.fathi@uomosul.edu.iq	هندسة الحاسوب/ شبكات الحاسوب	أ. م. د. إنعام فتحي خضر فتحي النعيمي
07703000094	ammar.khader@uomosul.edu.iq	هندسة الالكترونيات والاتصالات	م. د. عمار عبد الحميد خضر عبدالله
07736976905	modharhammoudy@uomosul.edu.iq	الهندسة الكهربائية/هندسة الالكترونيات والاتصالات	م. مضر أحمد حمودي حسين الدليمي
07702019182	sura.nawfal@uomosul.edu.iq	هندسة حاسوب / رسوم حاسوبية	م. د. سري نوفل عبد الرزاق يحيى الراوي
07704180624	Warqaa.Younis@uomosul.edu.iq	هندسة حاسوب/ سيطرة وحاسبات	م. ورقاء يونس ابراهيم احمد الراوي
07701652121	Zahraatalal@uomosul.edu.iq	هندسة الحاسوب /هندسة الحاسوب	م. د. زهراء طلال عبد علي المختار
7702037997	sura.ramzishareef@uomosul.edu.iq	علوم حاسوب / علوم حاسوب	م. د. سري رمزي شريف احمد الخالدي
0013219617263	bm.alhafidh@uomosul.edu.iq	هندسة حاسوب- انظمة مطمورة	م. د. بسمان محمود حسن محمود الحافظ
7736977297	mazin.haziz@uomosul.edu.iq	هندسة الكترونيات واتصالات / معالجة صور والذكاء الاصطناعي	م. د. مازن هاشم عزيز علي الإبراهيم
009647733735246	Nada.ismail@uomosul.edu.iq	الالكترونية واتصالات/ شبكات الحاسبات والاتصالات	م. ندى اسماعيل نجم عبدالله المعروف
07703003077	samarammar@uomosul.edu.iq	هندسة الحاسوب / معالجة الإشارة الرقمية	م. د. سمر عمار ياسر رامز القيشاوي
07517413481	ula.tariq@uomosul.edu.iq	هندسة الحاسوب	م. د. علا طارق سالم عبقو قبع
7702051113	noor.mowafeq@uomosul.edu.iq	هندسة الحاسوب	م. نور موفق جبر جاسم الليلة
7736976924	mustafa.qassab@uomosul.edu.iq	هندسة الحاسوب	م. د. مصطفى سهام عبد الرحمن داود القصاب
7703056264	hussein.mahmood@uomosul.edu.iq	هندسة الحاسوب	م. د. حسين محمود محمد خضر قروط
7736976899	huthaifa.mohammed@uomosul.edu.iq	هندسة الحاسوب	م. د. حذيفة ربيع محمد قاسم اغا الحياي
07701884898	Mohammad.t.mohammad@uomosul.edu.iq	هندسة الحاسوب	م. محمد طارق محمد ذياب سلطان
07701893361	ola.marwan@uomosul.edu.iq	هندسة الحاسوب	م. د. علا مروان عاصم علي ال

	edu.iq		سليمان أغا
07736976903	Hasan.allayla@uomosul.edu.iq	هندسة تقنية الحاسوب	م.حسن فخري حسن محمد الليله
07736976901	hamedeng@uomosul.edu.iq	هندسة الحاسوب	م.حامد عبدالعزيز محمود اسماعيل الحمادي
7724546538	sanabil_2000@uomosul.edu.iq	هندسة تقنيات الحاسوب/هندسة انظمة الحاسوب	م.د. سنابل احمد محمود
07736977283	jumana.abdullah@uomosul.edu.iq	هندسة الحاسوب	م.م.جمانة عبدالله كريم عبدالله
07701688649	muhanad.faris@uomosul.edu.iq	هندسة الحاسوب	م.م.مهند فارس صالح عطا الله العطا الله
7736976910	aalhamadani@uomosul.edu.iq	علوم حاسبات - شبكات	م.م. احمد طه حمو سليمان الحمداني
07507070343	kasimeng@uomosul.edu.iq	هندسة تقنيات الحاسبات	م.م.قاسم عبدالله أحمد صالح الصالح
07701686905	farah_nazar80@uomosul.edu.iq	هندسة الحاسوب	م.م.فرح نزار ابراهيم محمود الكمر كجي
07730740995	ahmedsa1983@uomosul.edu.iq	تقنية هندسة حاسوب - هندسة حاسوب	م.م. احمد سمير احمد إسماعيل جقماقجي
07736976717	sshaymaa226@uomosul.edu.iq	تربية / طرائق التدريس	م.م.شيماء نزار حسين علي الجراح
07705203480	farah.qassabbashi@uomosul.edu.iq	هندسة الحاسوب	م.م.فرح ناطق ياسين صالح قصاب باشي
07736976918	ban.alzaydi@uomosul.edu.iq	الهندسة الكهربائية	م.م. بان عزيز عاصي حموشي
07705973640	hiba.dhiya@uomosul.edu.iq	علوم الحاسوب	م.م.هبة ضياء علي بشير النعمة
07736976753	manar.allwi@uomosul.edu.iq	علوم حاسبات /البرمجيات	م.م. منار مزاحم علاوي محمد الشاهري
07503978169	haifaaahmed@uomosul.edu.iq	هندسة الحاسوب	م.م.هيفاء احمد حسن صالح حسن
07508146311	noor.alkhayatt@uomosul.edu.iq	هندسة الحاسوب	م.م. نور صلاح يحيى صالح الخياط

6. Credits, Grading and GPA

Credits

Mosul 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)

- 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:

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

240

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USS WL	ECT S	Typ e	Pre-request
UOM102 1	English Language 1	33	17	2.00	B	
UOM104 0	Democracy and Human Rights	33	17	2.00	B	
CO103	Mathematics 1	78	97	7.00	C	
CO104	Engineering Drawing by Computer	48	52	4.00	S	
CO105	Electrical Circuits Analysis1	108	67	7.00	C	
CO106	Physics I	63	62	5.00	C	
UOM103 1	Computer1	63	12	3.00	B	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USS WL	ECT S	Typ e	Pre-request
CO108	Programing using C++ Language	93	82	7.00	C	
UOM101 1	Arabic language 1	33	17	2.00	B	
CO110	Mathematics II	78	97	7.00	C	CO103
CO111	Electrical Circuits Analysis 2	108	67	7.00	C	CO105
CO112	Digital System Fundamentals	93	82	7.00	C	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USS WL	ECT S	Typ e	Pre-request
CO201	Mathematics III	63	62	5.00	C	CO110
CO202	Analog Electronics	93	57	6.00	C	CO111
CO203	Microprocessors 1	78	72	6.00	C	
UOM202 2	English Language 2	33	17	2.00	B	
CO205	Object Oriented Programing	78	47	5.00	C	CO108
CO206	Programmable Logic Design	78	72	6.00	C	CO112

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USS WL	ECT S	Typ e	Pre-request
CO207	Numerical Analysis	48	27	3.00	C	
CO208	Mathematics IV	63	62	5.00	C	CO201
CO209	Statistics	33	17	2.00	C	
CO210	Digital Electronics	48	52	4.00	C	
CO211	Microprocessors 2	78	72	6.00	C	CO203
CO212	Data Structures	93	57	6.00	C	
UOM205 0	Baath Regime Crimes in Iraq	33	17	2.00	B	
UOM201 2	Arabic Language 2	33	17	2.00	B	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USS WL	ECT S	Typ e	Pre-request
CO301	Data Communications	93	57	6.00	C	
CO302	Mathematics V	63	87	6.00	C	
CO303	Computer Architecture I	48	77	5.00	C	
CO304	Embedded systems	78	47	5.00	C	
CO305	Operating Systems	78	47	5.00	C	
CO306	Artificial Intelligence Fundamentals	33	42	3.00	C	

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USS WL	ECT S	Typ e	Pre-request
CO307	Computer Networks	93	32	7.00	C	
CO308	Digital Signal Processing	48	52	4.00	C	CO302
CO309	Computer Architecture 2	48	77	5.00	C	CO303
CO310	Mathematics VI	63	112	6.00	C	
CO311	Physics II	63	112	6.00	C	
CO312	Engineering Project Design and Planning	33	17	2.00	S	

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USS WL	ECT S	Typ e	Pre-request
CO401	Professional Ethics	18	32	2.00	S	
CO402	Control Systems Fundamentals	108	92	7.00	C	
CO403	Real Time Systems	78	97	7.00	C	
CO404	Machine Learning Programming	33	67	4.00	E	

CO405	Applied Sciences	48	102	6.00	C	
CO406	Parallel Computer Architecture	48	52	4.00	C	

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USS WL	ECT S	Typ e	Pre-request
CO407	Graduate Project	78	122	8.00	C	
CO408	Computer Graphics	33	67	4.00	C	
CO409	Cyber Security	33	67	4.00	C	
CO410	Mobile Systems Fundamentals	78	72	6.00	C	
CO411	Image Processing and Applications	48	52	4.00	C	
CO412	Distributed Systems	48	52	4.00	E	

8. Contact

Amar Idrees Daood | Ph.D. in computer Engineering | Assist Prof.
 Email: amar.daood@uomosul.edu.iq
 Mobile no.: 07729526888

Shawkat Khairullah | Ph.D. in computer Engineering | Assist Prof.
 Email: shawkat.sabah@uomosul.edu.iq
 Mobile no.:07713987505