Undergraduate Degree Program Catalogue | 2023-2024 |

دليل البرنامج الدراسي

Tikrit UNIVERSITY

جامعة تكريت

Bachelor of Science in Chemistry

بكالوريوس علوم في الكيمياء

Contents : المحتويات

1- About the Department:

The Department of Chemistry was established in the College of Science in 1999. The study period in the department is four years. The department grants a bachelor's degree in Chemistry Science after the student has completed a systematic scientific preparation that qualifies him/her to keep pace with technical progress in the field of scientific research and to provide service to the public and private sectors, such as Ministry of Oil, Ministry of Health.

The B.Sc. in Chemistry program provides students with a strong foundation in the traditional branches of chemistry, including analytical, organic, inorganic, and physical and biochemistry. The program also emphasizes the development of IT and communication skills. Students develop practical skills through laboratory courses utilizing state-of-the-art equipment. An internship placement provides students with training and preparation for the workplace. All students obtain experience in research through a project completed in their final year. Graduates of the program are well prepared to take up positions in the chemical and pharmaceutical industries or pursue further studies at the graduate level.

The bachelor's degree includes four periods; each period includes two semesters meaning for the students to be graduated, they must have completed eight semesters. The Department of Chemistry grants B. Sc. in Chemistry.

2- Mission & Vision Statement

i- Mission Statement

- ✓ To create and maintain programs of excellence in the areas of research, education, and public outreach.
- ✓ To promote, inspire and nurture the fundamentals of chemistry through different courses offered for the basic sciences, and applied sciences students.
- ✓ Our specific goal is to become a nationally recognized center of chemical sciences for modern education with a state of art centralized research facility.

ii- Vision

To establish the department as one of the best chemistry programs in Iraq with acknowledged excellence in research, and instruction, intellectual and physical location at the nexus between basic sciences, and applied sciences, which enables various multidisciplinary projects and interactions.

3- Program Goals

1- Provide chemistry majors with a strong background in the six major sub-disciplines of chemistry – organic, inorganic, physical, Industrial, analytical, and biochemistry – with up-to-date coursework in each area.

2- Provide students with relevant laboratory and research experiences designed to deepen their understanding of chemical principles, while simultaneously teaching students safe, responsible laboratory practices.

3- Demonstrate the use of modern technology in chemistry by giving students direct, hands-on experiences with up-to-date instrumentation, computer software, and methods of information retrieval, both in coursework and in the laboratory setting.

4- Provide opportunities for students to become familiar with the chemical professions and professional activities of practicing chemists and biochemists.

5- Provide students with a more holistic view of chemistry through an emphasis on its interdisciplinary nature by using specific examples to illustrate connections between chemistry and other science areas.

4- Program Specifications:

The Chemistry program given by Tikrit University is prepared to assist you in acquiring the academic foundation required for a career as a professional chemist in the refineries, health science, industrial, and academic fields.

You will develop the knowledge and abilities necessary to demonstrate an in-depth understanding of advanced topics in the different main branches of chemistry, i.e., Organic, Inorganic, and Physical Chemistry. Also, devise suitable experimental methods for their research project. And demonstrate the ability to

work independently and effectively disseminate the research findings using effective communication skills.

Program code:	B. Sc. - CHEM	**ECTS**	240
Duration:	4 levels, 8 Semesters	**Method of Attendance:**	Full Time

5- Student Learning Outcomes

1- To understand the fundamental concepts and principles of chemistry.
2- To recognize the basic theories of chemical methods and techniques.
3- To define and reproduce scientific information about chemical topics.
4- To integrate and evaluate chemical information and data in order to gain a coherent understanding of theory and practice.
5- To analyze, interpret, and chemical data by linking chemical and physical concepts with mathematical expressions.
6- To propose and apply creative solutions to chemical problems with limited guidance.
7- To develop applications of chemical concepts to other areas of science, technology, and industry.
8- To employ developed information and communications technology in gathering and interpreting chemical information and ideas.

6- Academic Staff

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7- Credits, Grading and GPA

i. Credits

Tikrit University follows Bologna Learning 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** student workload, including structured and unstructured workload.

ii. 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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
NB 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.				

iii. Calculation of the Grade Point Average (GPA)

1. The GPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   GPA of a 4-year B.Sc. degrees:

   GPA = [(1st module score x ECTS) + (2nd module score x ECTS) + ……] / 240

8- Curriculum/Modules

Semester 1 | 30 ECTS

No.	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
1	CHE-1101	Qualitative analytical chemistry	الكيمياء التحليل النوعي	109	66	175	7.00	C	
2	CHE-1102	Inorganic Chemistry I	الكيمياء اللاعضوية I	79	71	150	6.00	C	
3	CHE-1103	Physics	الفيزياء	93	57	150	6.00	B	
4	CHE-1104	Labortary Sefty	السلامة والامن الكيمياني	48	27	75	3.00	B	
5	UoT- 1105	Human and democracy	حقوق انسان والديمقراطية	48	52	100	4.00	S	
6	UoT-1106	Mathematics I	الرياضيات I	63	37	100	4.00	S	
				440	310	750	30.00		

Semester 2 | 30 ECTS

No.	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
1	CHE-1217	Volumetric analytical chemistry	الكيمياء التحليل الحجمي	109	66	175	7.00	C	CHE-1101
2	CHE-1218	Inorganic Chemistry II	اللاعضوية II	79	71	150	6.00	C	CHE-1102
3	CHE-1209	Statistic	الاحصاء	63	37	100	4.00	B	
4	CHE-12010	Cytology	علم الخلية	93	57	150	6.00	B	
5	CoS-12011	Computers program I	برمجة الحاسوب	48	27	75	3.00	B	
6	UoT-12012	Language I	اللغات	63	37	100	4.00	S	
				455	295	750	30.00		

Semester 3 | 30 ECTS

No.	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
1	CHE-23113	Gravity Analytical chemistry	الكيمياء التحليل الوزني	79	71	150	6.00	C	CHE-1217
2	CHE-23114	Inorganic Chemistry III	الكيمياء اللاعضوية 3	94	56	150	6.00	C	CHE-1218
3	CHE-23115	Thermodynamic Chemistry I	كيمياء الثرموديناميك 1	94	56	150	6.00	C	
4	CHE-23116	Organic Chemistry I	الكيمياء العضوية 1	79	71	150	6.00	C	
5	CoS-23117	Computers program II	برمجة الحاسوب 2	48	27	75	3.00	B	CoS-12011
6	CoS-23118	Mathematics II	رياضيات II	48	27	75	3.00	B	UoT-1106
				442	308	750	30.00		

Semester 4 | 30 ECTS

No.	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
1	CHE-24119	Separations methods	طرائق فصل	94	56	150	6.00	C	CHE-23113
2	CHE-24120	Inorganic Chemistry IV	الكيمياء اللاعضوية 4	94	56	150	6.00	C	CHE-23114
3	CHE-24121	Thermodynamic Chemistry II	كيمياء الثرموديناميك 2	79	71	150	6.00	C	CHE-23115
4	CHE-24122	Organic Chemistry II	الكيمياء العضوية 2	79	71	150	6.00	C	CHE-23116
5	CoS-24123	Nanotechnology	نانو تكنولوجي	48	27	75	3.00	C	
6	UoT-24124	English language	اللغة الانكليزية	48	27	75	3.00		UoT-12012
				442	308	750	30.00		

Semester 5 | 30 ECTS

No.	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
1	CHE-35125	Coordination Chemistry I	الكيمياء التناسقية 1	79	71	150	6.00	C	CHE-24120
2	CHE-35126	Kinetic Chemistry	الكيمياء الحركية	79	71	150	6.00	C	CHE-24121
3	CHE-35127	Organic Chemistry 3	الكيمياء العضوية 3	79	71	150	6.00	C	CHE-24122
4	CHE-35128	Biochemistry 1	الكيمياء الحياتية 1	79	71	150	6.00	C	
5	CHE-35029	Principles of Industrial Chemistry	اسس الكيمياء الصناعية	48	52	100	4.00	C	
6	CHE-35030	Selective 1	الاختياري 1	33	17	50	2.00	C	
				397	353	750	30.00		

Semester 6 | 30 ECTS

No.	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
1	CHE-36131	Coordination Chemistry II	الكيمياء التناسقية 2	79	71	150	6.00	C	CHE-25125
2	CHE-36132	Electric chemistry	الكيمياء الكهربائية	79	71	150	6.00	C	CHE-25126
3	CHE-36133	Organic chemistry 4	الكيمياء العضوية 4	79	71	150	6.00	C	CHE-25127
4	CHE-36134	Biochemistry 2	الكيمياء الحياتية 2	79	71	150	6.00	C	CHE-25128
5	CHE-36135	Application of Industrial Chemistry	تطبيقات الكيمياء الصناعية	48	52	100	4.00	C	CHE-25029
6	CHE-36036	Research Methodology	منهجية البحث	33	17	50	2.00	B	
				397	353	750	30.00		

Semester 7 | 30 ECTS

No.	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
1	CHE-47137	Instrumental analysis 1	كيمياء التحليل الالي 1	79	71	150	6.00	C	
2	CHE-47138	Organic Identification 1	التشخيص العضوي 1	79	46	125	5.00	C	CHE-36133
3	CHE-47139	Biochemistry 3	الكيمياء الحياتية 3	79	46	125	5.00	C	CHE-36134
4	CHE-47140	Industrial chemistry3	الكيمياء الصناعية 3	78	72	150	6.00	C	CHE-36135
5	CHE-47141	Spectroscopy chemistry	كيمياء الاطياف	48	52	100	4.00	C	
6	CHE-47042	Research project	مشروع البحث	33	67	100	4.00	B	
				396	354	750	30.0		

Semester 8 | 30 ECTS

No.	Module Code	Module Name in English	اسم المادة الدراسية	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
1	CHE-48143	Instrumental analysis 2	كيمياء التحليل الالي 2	79	71	150	6.00	C	CHE-47137
2	CHE-48144	Identification 2	التشخيص العضوي 2	79	46	125	5.00	C	CHE-47138
3	CHE-48145	Biochemistry 4	الكيمياء الحياتية 4	79	46	125	5.00	C	CHE-47139
4	CHE-48146	Industrial chemistry 4	الكيمياء الصناعية 4	78	72	150	6.00	C	CHE-47140
5	CHE-48147	Quantum chemistry	كيمياء الكم	48	52	100	4.00	C	CHE-47141
6	CHE-48148	selective 2	الاختياري 2	33	67	100	4.00	C	
				396	354	750	30.0		

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