

Undergraduate Degree Program Catalogue | 2023-

2024 | دليل البرنامج الدراسي

Tikrit UNIVERSITY

جامعة تكريت



Bachelor of Science in Chemical Engineering

بكالوريوس علوم - هندسة كيمياوية



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1. Mission & Vision Statement

Vision Statement

The department's goal is to provide a nationally renowned undergraduate program in chemical engineering with research strengths in the petrochemical industry, process safety, process systems engineering, water treatment, and artificial intelligence.

Mission Statement

1. Educate future leaders and innovators in chemical engineering and related disciplines to become successful career chemical engineers.
2. By engaging in academic research, chemical engineering knowledge is expanded.
3. To meet social demands, develop technology.
4. Through involvement in chemical engineering and related fields, we will advance the welfare of the Iraqi population.

2. Program Specifications

Program code:	BSc-ChE	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

The Chemical Engineering program offered by Tikrit University are designed to assist you in acquiring the academic foundation required for a career as a professional engineer in the industrial, consultancy, and academic fields. You will develop the knowledge and

abilities necessary to meet the challenges of industry and research in the twenty-first century, including those relating to the design, construction, maintenance, and operation of a wide variety of systems. You will also gain the understanding necessary to work at the intersection of engineering and the chemical sciences..

3. Program Goals

The program educational objectives are to:

1. Prepare men and women to be successful as Chemical Engineers.
2. Participate in service projects that emphasize the societal advantages of engineering concepts.
3. Be able to pursue graduate studies and dedicate to continuing professional growth and long-life learning through bridging engineering and non-engineering professions.

4. Student Learning Outcomes

1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply the engineering design process to produce solutions that meet specified needs with consideration for public health and safety, and global, cultural, social, environmental, economic, and other factors as appropriate to the discipline.
3. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
4. An ability to communicate effectively with a range of audiences.
5. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
6. An ability to recognize the ongoing need to acquire new knowledge, to choose appropriate learning strategies, and to apply this knowledge.
7. An ability to function effectively as a member or leader of a team that establishes goals, plans tasks, meets deadlines, and creates a collaborative and inclusive environment.

1. Academic Staff

Saba Adnan Gheni | Ph.D. in Chemical Engineering | Professor
Email: ghenis@tu.edu.iq

Duraid Fadel Ahmed | Ph.D. in Chemical Engineering | Professor
Email: drduraid@tu.edu.iq

Ayser Talib Jarallah | Ph.D. in Chemical Engineering | Professor
Email: a.t.jarullah@tu.edu.iq

Saad Nahi Saleh | Ph.D. in Chemical Engineering | Assistant Prof.
Email: snsaleh@tu.edu.iq

Burhan Sadiq Abdel Razzaq | Ph.D. in Chemical Engineering | Assistant Prof.
Email: burhansadik@tu.edu.iq

Safaa Mohammed Rashid Ahmed | Ph.D. in Chemical Engineering | Assistant Prof.
Email: safaamohamed@tu.edu.iq

Harith Noori Mohammed | Ph.D. in Chemical Engineering | Assistant Prof.
Email: hnmohammed@tu.edu.iq

Ghassan Hamad Abdullah | Ph.D. in Chemical Engineering | Assistant Prof.
Email: ghassan.h.abdullah@tu.edu.iq

Suhaib Shwish Saleh | Ph.D. in Chemical Engineering | Assistant Prof.
Email: Suhaibsalih@tu.edu.iq

Israa Talib Humeidy | Ph.D. in Chemistry | Assistant Prof.

Email: israatalib@tu.edu.iq

Maha Ibrahim Saleh | PhD in Chemical Engineering | Assistant Prof.

Email: maha.al.ali@tu.edu.iq

Mohamed Mazher Aftan | Ph.D. in Chemistry | Assistant Prof.

Email: mohamedmizher@tu.edu.iq

Shymaa Ali Hameed | MSc in Chemical Engineering | Professor

Email: sh.a.hamed@tu.edu.iq

Haider Akram Aref | PhD in Chemical Engineering | Lecturer

Email: h.alnasri@tu.edu.iq

Thaer Adnan Abdullah | PhD in Chemical Engineering | Lecturer

Email: adnan.thaer@tu.edu.iq

Rasha Khalid Ahmed | PhD in Chemical Engineering | Lecturer

Email: rashakhalid@tu.edu.iq

Marwa Nori Mohammed | PhD in Chemical Engineering | Lecturer

Email: marwa.n.mohammed@tu.edu.iq

Heba Saadi Ayoub | MSc in Chemical Engineering | Lecturer

Email: hebahsaadi@tu.edu.iq

Maha Nizar Ismail | MSc in Chemical Engineering | Lecturer

Email: eng.mahanazar@tu.edu.iq

Safa Walid Shaker | MSc in Chemical Engineering | Lecturer

Email: eng.safawaleed@tu.edu.iq

Sabah Muhammad Hassan | MSc in Chemical Engineering | Assistant Lecturer

Email: eng.safawaleed@tu.edu.iq

Omar Saeed Lateef | MSc in Chemical Engineering | Assistant Lecturer

Email: o.s.lateef@tu.edu.iq

Sahar Adnan Ahmed | MSc in Chemical Engineering | Assistant Lecturer

Email: saharadnan@tu.edu.iq

Mahmood Gheni Jaboor | MSc in Chemical Engineering | Assistant Lecturer

Email: mgjebur@tu.edu.iq

Ghazwan Saleh Ahmed | MSc in Chemical Engineering | Assistant Lecturer

Email: ghazwan.s.ahmed@tu.edu.iq

Hiba Ramadhan Muhammed | MSc in Chemical Engineering | Assistant Lecturer

Email: hibamohammed92@tu.edu.iq

Mudher Mohammed Abed | MSc in Chemical Engineering | Assistant Lecturer

Email: mudher.m.ali10477@st.tu.edu.iq

Kumait Saeed Awad | MSc in Economy | Assistant Lecturer

Email: kumait.s.awad@st.tu.edu.iq

2. Credits, Grading and GPA

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 workloads, 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	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.

Calculation of the Grade Point Average (GPA)

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:

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

3. Curriculum/Modules

Semester 1 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CHEM_ENG 101	Introduction to Chemical Engineering	75	75	6	C	-
MATH 101	Calculus I	90	60	6	B	-
CHEM_101	Organic Chemistry	75	75	6	B	-
ENG-102	Engineering Mechanics	60	65	5	B	-
CHEM_ENG 102	Laboratory Safety	45	55	4	B	-
ENG-107	English I	45	30	3	S	-

Semester 2 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CHEM_ENG 103	Mass Balance	90	60	6.00	C	CHEM_ENG-102
MATH-102	Calculus 2	90	60	6.00	C	MATH-102
CHEM_102	Analytical Chemistry	90	60	6.00	B	-
ENG-106	Engineering Workshops	45	30	3.00	S	-
ENG-104	Computer Science	60	65	5.00	S	-
ENG-101	Engineering Drawing	65	35	4.00	S	-

Semester 3 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MATH-201	Engineering Analysis	75	75	6.00	B	MATH-102

CHEM_ENG-201	Energy Balance	75	75	6.00	C	CHEM_ENG-103
CHEM_ENG-202	Fluid Flow I	90	60	6.00	C	CHEM_ENG-103
CHEM-201	Physical Chemistry	90	60	6.00	B	-
CHEM_ENG-203	Pollution	45	30	3.00	C	-
ENG-108	Democracy and Human Rights	45	30	3.00	S	-

Semester 4 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CHEM-ENG-204	Industrial & Petrochemical Processes	75	50	5.00	C	-
MATH 202	Numerical Analysis	90	60	6.00	B	MATH-201
CHEM-ENG-206	Fluid Flow II	90	60	6.00	C	CHEM_ENG-202
CHEM-ENG-207	Engineering Materials	75	50	5.00	C	ENG-102
ENG-105	Computer Programming	60	65	5.00	S	ENG-104
ENG-109	English II	45	30	3.00	S	ENG-107

Semester 5 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CHEM-ENG-301	Process Modelling	60	65	5.00	C	CHEM_ENG-201
CHEM_ENG-302	Thermodynamic I	60	65	5.00	C	MATH-201
CHEM_ENG-303	Heat Transfer I	75	75	6.00	C	CHEM_ENG-201, CHEM_ENG-206
CHEM_ENG-304	Mass Transfer I	75	75	6.00	C	CHEM_ENG-103
CHEM_Eng -305	Chemical Process Safety and Professional ethics	60	65	5.00	C	CHEM_ENG-102, CHEM_ENG-204
MATH -302	Statistics and Probability	45	30	3.00	B	-

Semester 6 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CHEM_Eng -306	Process Simulation	60	65	5.00	C	CHEM_ENG-204

CHEM_ENG-307	Thermodynamic II	60	65	5.00	C	CHEM_ENG-302
CHEM_ENG-308	Heat Transfer II	90	60	6.00	C	CHEM_ENG-303
CHEM_ENG-309	Mass Transfer II	90	60	6.00	C	CHEM_ENG-304
CHEM_Eng -310	Unit Operations	90	60	6.00	C	CHEM_ENG-103, CHEM_ENG-206
ENG-110	Engineering Economics	30	20	2.00	S	CHEM_ENG-204

Semester 7 | 30 ECTS

Code	Module	SSWL	USSW L	ECTS	Type	Pre-request
CHEM_Eng -401	Chemical Reactor I	60	65	5.00	C	CHEM-201, CHEM_ENG-103
CHEM_Eng -402	Petroleum Refining I	90	60	6.00	C	CHEM-101, CHEM_ENG-103
CHEM_Eng -403	Chemical Eng. Equipment Design I	60	65	5.00	C	CHEM_ENG-206, CHEM_ENG-308
CHEM_Eng -404	Chemical Process Dynamic	60	65	5.00	C	CHEM_ENG-301, MATH-201
CHEM_ENG-405	Graduation Project Part I	30	95	5.00	C	CHEM_ENG-103, CHEM_ENG-201
CHEM_Eng -406, 407	Elective course	60	40	4.00	C	CHEM201, CHEM_ENG-207

Semester 8 | 30 ECTS

Code	Module	SSWL	USSW L	ECTS	Type	Pre-request
CHEM_Eng -408	Chemical Reactor II	60	65	5.00	C	CHEM_ENG-401
CHEM_Eng -409	Petroleum Refining II	60	65	5.00	C	CHEM_ENG-402
CHEM_Eng -410	Chemical Eng. Equipment Design II	60	65	5.00	C	CHEM_ENG-403
CHEM_Eng -411	Chemical Process Control	90	60	6.00	C	CHEM_ENG-404
CHEM_ENG-412	Graduation Project Part II	30	95	5.00	C	CHEM_ENG-405, CHEM_ENG-403
CHEM_Eng -413, 414	Elective course	60	40	4.00	C	CHEM_ENG-401, CHEM_ENG-408

4. Contact

Program Manager and Head of the Department:

Hayder Akram Al-Nasri | Ph.D. in Chemical Engineering | Lecturer

Email: h.alnasri@tu.edu.iq

Mobile no.: +9647733600115

Program Coordinator:

Mohamed Mazher Aftan | Ph.D. in Chemistry | Assistant Prof.

Email: mohamedmizher@tu.edu.iq

Mobile no.: +9647701021010