

# University of Anbar

## جامعة الأنبار



*First Cycle – Bachelor's Degree (B.Sc.) - Electrical Engineering*

بكالوريوس – هندسة كيميائية وبتروكيميائية



## جدول المحتويات | Table of Contents

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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*

The Department of Chemical and Petrochemical Engineering believes that the importance of studying in it stems from providing a quality of engineering education that contributes to its outputs year after year by qualifying students scientifically and technically to serve the development process in the sectors related to the Department of Chemical Engineering, which leads to contributing to the country's progress by graduating qualified chemical engineers and through Carrying out applied scientific research that helps to recognize the program at the local, regional and international levels as a competitive teaching program.

### *Mission*

The Department of Chemical Engineering provides industry and government agencies with competent and socially responsible engineers. The department contributes to the advancement of knowledge through quality research and scholarly activities and offers services to local and international communities.”

## 2. **Program Specification**

<b>Programme code:</b>	BSc-CHE	<b>ECTS</b>	240
<b>Duration:</b>	4 levels, 8 Semesters	<b>Method of Attendance:</b>	Full Time

The Department of Chemical and Petrochemical Engineering is one of the important departments in the College of Engineering - University of Anbar, despite its recent opening in 2012. Its importance comes due to its close connection with the development of industry in various fields, especially in the oil and gas industry, petrochemicals, pharmaceutical, food, plastics, ceramics, fertilizers and detergents. Paints, batteries, environmental decontamination processes, water treatment...etc. The Department of Chemical Engineering is also a basis for study in other engineering disciplines, such as nuclear engineering, energy engineering, environmental engineering, genetic engineering, medical engineering, and biochemistry.

### **3. Program Objectives**

#### **PEO-1: Professional Presence**

As a result, within a few years, the graduate has established an Internet presence, either through professional organizations, social networking and/or other activities which demonstrate an appreciation and use of modern technological capabilities.

#### **PEO-2: Workforce Skilled in Integrating Engineering, Design, and modern Technology**

As a result, graduates will identify opportunities to contribute to society from a variety of positions, ranging from water management engineering, design and construction of hydraulic structures and engage professionally in private and governmental sectors such as consulting firms, contracting companies, marketing and real-estate investments. The graduate may also pursue further education in the form of graduate and professional degrees.

#### **PEO-3: Leadership in Research, Innovation and Design**

As a result, within a few years of graduation, the graduate will have made significant or meaningful contributions in his or her chosen field, either thorough research publications and/or presentations, the development of a new design or construction process, obtaining patents, or other evidence of contributing to the advancement of knowledge, particularly in the fields of hydraulic structures and water resources engineering.

#### **PEO-4: Ethical Reasoning, Behaviour and Professionalism**

As a result, within a few years of graduation, the graduate will demonstrate adherence to the professional codes of conduct appropriate to his or her field of study and/or practice, as well as exhibit behaviour consistent with accepted standards of fiduciary responsibility, risk/benefit analysis and professional accountability.

#### **PEO-5: Communication**

As a result, graduates will have outstanding communication skills as evidenced by their professional presentations, and in their productive interactions with co-workers. The graduates may also use their communication skills to foster collaborative effort among co-workers and/or may represent his or her company, institution and/or laboratory to other interested parties.

#### **PEO-6: Personal Engagement**

As a result, within a few years, the graduate will be working independently and in multidisciplinary teams to effectively and efficiently achieve personal and organizational goals, engage in community or public service, create a product or construction that fills a social need, and/or participate in educating individuals about an issue of societal concern.

## 4. Student Learning Outcomes

The University of Anbar is following the National Graduate Outcomes (NGOs):

- i) An ability to distinguish, identify, define, formulate, and solve engineering problems by applying principles of engineering, science and mathematics.
- ii) An ability to produce engineering designs that meet desired needs within certain constraints by applying both analysis and synthesis in the design process.
- iii) An ability to create and carry out proper measurement and tests with quality assurance, analyze and interpret results, and utilize engineering judgment to make inferences.
- iv) An ability to skillfully communicate orally with a gathering of people and in writing with various managerial levels.
- v) An ability to perceive ethical and professional responsibilities in engineering cases and make brilliant judgments taking into account the consequences in worldwide financial, ecological and societal considerations.
- vi) An ability to perceive the continual necessity for professional knowledge growth and how to find, assess, assemble and apply it properly.
- vii) An ability to work adequately on teams and to set up objectives, plan activities, meet due dates, and manage risk and uncertainty.

## 5. Academic Staff

**Hamid A. Fayadh | Ph.D. in Chemical Engineering | Ass. Professor**

Email: [h.alfalahi@uoanbar.edu.iq](mailto:h.alfalahi@uoanbar.edu.iq)

Mobile no.: 00964 7824940498

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**Hamad A. Khalifa | Ph.D. in Polymers | Ass. Professor**

Email: [habdulkadir56@uoanbar.edu.iq](mailto:habdulkadir56@uoanbar.edu.iq)

Mobile no.: 00964 7901782032

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**Mustafa B. Alhadithi | Ph.D. in Mechanical Engineering | Ass. Professor**

Email: [mustafaalhadithi@uoanbar.edu.iq](mailto:mustafaalhadithi@uoanbar.edu.iq)

Mobile no.: 00964 7809655472

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**Omar M. Hussein | Ph.D. in Chemical Engineering | Lecturer**

Email: [omalkuba@uoanbar.edu.iq](mailto:omalkuba@uoanbar.edu.iq)

Mobile no.: 00964 7810484458

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**Sufyan F. Ahmed | Ph.D. in Chemical Engineering | Lecturer**

Email: [sufyanfadhil@uoanbar.edu.iq](mailto:sufyanfadhil@uoanbar.edu.iq)

Mobile no.: 00964 7703480506

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**Suha A. Mohemmed | Ph.D. in Chemical Engineering | Lecturer**

Email: [suha\\_elzein@uoanbar.edu.iq](mailto:suha_elzein@uoanbar.edu.iq)

Mobile no.: 00964 7513050519

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**Abbas H. Faris | Ph.D. in Chemistry | Lecturer**

Email: [abbashasan@uoanbar.edu.iq](mailto:abbashasan@uoanbar.edu.iq)

Mobile no.: 00964 7732447257

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**Ayad A. Mayoof | Ph.D. in Mechanical Engineering | Lecturer**

Email: [ayadaied@uoanbar.edu.iq](mailto:ayadaied@uoanbar.edu.iq)

Mobile no.: 00964 7818518166

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**Mohammed J. Mohammed | Ph.D. in Materials | Lecturer**

Email: [moh.jasim@uoanbar.edu.iq](mailto:moh.jasim@uoanbar.edu.iq)

Mobile no.: 00964 7819911161

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**Khalid A. Mohammed | M.Sc. in Civil Engineering | Lecturer**

Email: [khalid\\_awad10@uoanbar.edu.iq](mailto:khalid_awad10@uoanbar.edu.iq)

Mobile no.: 00964 7819464343

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**Yasir R. Al-Hamadany | M.Sc. in Chemical Engineering | Ass. Lecturer**

Email: [alhumam-2013@uoanbar.edu.iq](mailto:alhumam-2013@uoanbar.edu.iq)

Mobile no.: 00964 7813981146

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**Suha M. Salih | M.Sc. in Chemical Engineering | Ass. Lecturer**

Email: [Suha.Mahdi82@uoanbar.edu.iq](mailto:Suha.Mahdi82@uoanbar.edu.iq)

Mobile no.: 00964 7802094281

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**Bdoor M. Kurji | M.Sc. in Chemical Engineering | Ass. Lecturer**

Email: [Bdoorm.kurji@uoanbar.edu.iq](mailto:Bdoorm.kurji@uoanbar.edu.iq)

Mobile no.: 00964 7902388522

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**Khaled J. Hamid | M.Sc. in Physical Chemistry | Ass. Lecturer**

Email: [Khaled.j.h@uoanbar.edu.iq](mailto:Khaled.j.h@uoanbar.edu.iq)

Mobile no.: 00964 7823237037

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**Osama M. Ali | M.Sc. in Chemical Engineering | Ass. Lecturer**

Email: [osama.a.m@uoanbar.edu](mailto:osama.a.m@uoanbar.edu)

Mobile no.: 00964 7800929916

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**Ibrahim Kh. Abduljabbar | M.Sc. in Mechanical Engineering | Ass. Lecturer**

Email: [ibrahim.khadir@uoanbar.edu.iq](mailto:ibrahim.khadir@uoanbar.edu.iq)

Mobile no.: 00964 7818943759

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**Omar H. Hussen | M.Sc. in Mechanical Engineering | Ass. Lecturer**

Email: [omer.hamaad@uoanbar.edu.iq](mailto:omer.hamaad@uoanbar.edu.iq)

Mobile no.: 00964 7814782553

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**Abu Obiada A. Abdul-Aziz | B.Sc. in Chemical Engineering | Engineer**

Email: [abuobaydah.a.a@uoanbar.edu.iq](mailto:abuobaydah.a.a@uoanbar.edu.iq)

Mobile no.: 00964 7807717059

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**Abdullah G. Salem | B.Sc. in Chemical Engineering | Engineer**

Email: [abdullahghanim96@uoanbar.edu.iq](mailto:abdullahghanim96@uoanbar.edu.iq)

Mobile no.: 00964 7803415135

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## 6. Credits, Grading and GPA

### Credits

The University of Anbar 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:

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



## 7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOA 1101	English	48	27	3.00	B	None
UOA 1102	Computer science	63	37	4.00	B	None
COE 1201	Fundamental of electrical circuits	63	87	6.00	S	None
COE 1202	Calculus I	63	87	6.00	S	None
COE 1203	Chemistry	78	47	5.00	S	None
CHE 1301	Principles of Chemical Engineering I	63	87	6.00	C	None

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOA 1103	Human rights and Democracy	33	17	2.00	B	None
COE 1204	Calculus II	63	87	6.00	S	COE 1201
COE 1205	Engineering Drawing	63	87	6.00	S	None
CHE 1302	Physical Chemistry I	63	62	5.00	S	None
CHE 1303	Organic Chemistry	63	62	5.00	S	None
CHE1304	Principles of Chemical engineering II	63	87	6.00	C	CHE 1301

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
COE 2206	Calculus III	63	87	6.00	S	COE 1204
COE 2207	Physics	33	92	5.00	S	None
CHE 2305	Physical Chemistry II	48	52	4.00	S	CHE 1302
CHE 2306	Fluid Mechanics I	63	62	5.00	C	None
CHE 2307	Thermodynamic I	63	62	5.00	C	None
CHE 2308	Mass Transfer I	48	77	5.00	C	None

**Semester 4 | 30 ECTS | 1 ECTS = 25 hrs**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOA 2104	Arabic language	33	17	2.00	B	None
COE 2208	Calculus IV	63	87	6.00	S	COE 2206
COE 2209	Engineering Mechanic (Static)	33	117	6.00	S	None
CHE 2309	Mass Transfer II	48	77	5.00	C	CHE 2308
CHE 2310	Fluid Mechanics II	78	72	6.00	C	CHE 2306
CHE 2311	Thermodynamic II	63	62	5.00	C	CHE 2307

**Semester 5 | 30 ECTS | 1 ECTS = 25 hrs**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOA 3105	Ethics and Leadership Skills	33	17	2.00	B	None
COE 3210	Engineering Statistics	33	67	4.00	S	None
CHE 3312	Reactor Design I	63	87	6.00	C	None
CHE 3313	Unit Operation I	63	87	6.00	C	None
CHE 3314	Heat Transfer I	63	87	6.00	C	None
CHE 3315	Engineering Material	63	87	6.00	C	None

**Semester 6 | 30 ECTS | 1 ECTS = 25 hrs**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
COE 3211	Numerical Methods	63	62	5.00	S	None
CHE 3316	Unit Operation II	63	62	5.00	C	CHE 3313
CHE 3317	Reactor Design II	63	87	6.00	C	CHE 3312
CHE 3318	Engineering Environment	48	52	4.00	C	None
CHE 3319	Heat Transfer II	63	87	6.00	C	CHE 3314
CHE 3320	Chemical & Petrochemical Industry	63	37	4.00	C	None

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
COE 4212	Engineering Economy	33	42	3.00	S	None
CHE 4321	Petroleum and Natural Gas Engineering	63	62	5.00	C	None
CHE 4322	Transport Phenomena	63	87	6.00	C	None
CHE 4323	Equipment Design	48	77	5.00	C	None
CHE 4324	Control Processes I	33	92	5.00	C	None
CHE 4325	Project I	63	87	6.00	C	None

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CHE 4326	Control Processes II	33	92	5.00	C	CHE 4324
CHE 4327	Petroleum Refinery	63	62	5.00	C	None
CHE 4328	Technology of Catalyst	33	67	4.00	C	None
CHE 4329	Engineering Analysis	63	62	5.00	C	None
CHE 4330	Corrosion Engineering	48	77	5.00	C	None
CHE 4331	Project II	63	87	6.00	C	None

## 8. Contact

Program Manager:

**Omar M. Hussein** | Ph.D. in Chemical Engineering | Lecturer

Email: [omalkuba@uoanbar.edu.iq](mailto:omalkuba@uoanbar.edu.iq)

Mobile no.: 00964 7810484458

Program Coordinator:

**Osama M. Ali** | M.Sc. in Chemical Engineering | Ass. Lecturer

Email: [osama.a.m@uoanbar.edu](mailto:osama.a.m@uoanbar.edu)

Mobile no.: 00964 7800929916