



Course Distribution Plan

(Two Semesters Plan)

College: **College of Engineering**

Department: **Chemical Engineering**

Program: **B.S. in Chemical Engineering**

The general structure of the distribution of academic units on the academic program

Requirements	Courses	No. of Units
University Requirements (8)	Required	4
	Elective	4
College Requirements (54)	Required	54
	Elective	0
Program Requirements (80)	Required	61
	Supportive (if any)	0
	Electives	9
	Graduation Project (if any)	4
Free Elective Courses		0
Field Training		0
The total number of units approved for the academic program		136

Academic Levels:

First Year: Level-1

#	Course Number	Course Code	Course Name (English)	Course Name (Arabic)	Course Nature* (U, C, P)*	Credit Units	Contact Hours	Nature of Contact Hours		Pre-requisite(s) (if any)	Co-requisite(s) (if any)
								Theoretical	Practical		
1	0817-144	MATH144	Calculus I	تفاضل و تكامل 1	Required (U)	4	4	4	0	None	None
2	0814-140	PHYS140	General Physics I	فيزياء عامة 1	Required (C)	3	3	3	0	None	0817-144 & 0814-144
3	0814-144	PHYS144	General Physics I Lab	مختبر فيزياء عامة 1	Required (P)	1	3	0	3	None	0814-140
4	0815-140	CHEM140	General Chemistry I	كيمياء عامة 1	Required (C)	3	3	3	0	None	None
5	2200-100	ENGR100	Introduction to Engineering	مدخل الى الهندسة	Required (C)	1	1	1	0	None	None
6	2200-106	ENGR106	Engineering Graphics	الرسم الهندسي	Required (C)	2	2	0	2	None	None
7	1722-133	ENG133	English Composition I	تعبير انجليزي 1	Required (C)	2	2	2	0	None	None
Total :						16	16	13	3		

*(Required or Elective)

* U: University requirements, C: College Requirements, P: Program Requirements

First Year: Level-2

#	Course Number	Course Code	Course Name (English)	Course Name (Arabic)	Course Nature* (U, C, P)*	Credit Units	Contact Hours	Nature of Contact Hours		Pre-requisite(s) (if any)	Co-requisite(s) (if any)
								Theoretical	Practical		
1	0817-145	MATH145	Calculus II	تفاضل و تكامل 2	Required (C)	4	4	4	0	0817-144	
2	0814-141	PHYS141	General Physics II	فيزياء عامة 2	Required (C)	3	3	3	0	0814-140	0814-145
3	0814-145	PHYS145	General Physics II Lab	مختبر فيزياء عامة 2	Required (C)	1	3	0	3		0814-141
4	0815-142	CHEM142	General Chemistry II	كيمياء عامة 2	Required (C)	3	3	3	0	0815-140	0815-143
5	0815-143	CHEM143	General Chemistry Lab	مختبر كيمياء عامة	Required (C)	1	3	0	3		0815-142
6	2200-105	ENGR105	Engineering Computing & Skills	مهارات حاسوبية هندسية	Required (C)	2	2	0	2	0817-145	2200-100
7	1722-134	ENG134	English Composition II	تعبير انجليزي 2	Required (C)	2	2	2	0	1722-133	
8	1722-138	ENG138	Fundamentals of Speech Communication	أساسيات التواصل الخطابي	Required (C)	2	2	2	0		1722-134
Total :						18	18	14	4		

*(Required or Elective)

* U: University requirements, C: College Requirements, P: Program Requirements

Second Year: Level-3

#	Course Number	Course Code	Course Name (English)	Course Name (Arabic)	Course Nature* (U, C, P)*	Credit Units	Contact Hours	Nature of Contact Hours		Pre-requisite(s) (if any)	Co-requisite(s) (if any)
								Theoretical	Practical		
1	0816-140	BIO140	Biology	الاحياء	Required (P)	3	3	3	0	0817-145	
2	0817-244	MATH244	Multivariate Calculus	رياضيات متعددة المتغيرات	Required (C)	3	3	3	0	0817-145	
3	2204-201	CHE201	Principles of Chemical Engineering	مبادئ الهندسة الكيميائية	Required (P)	3	3	3	0	0814-140	2200-106
4	0815-242	CHEM242	Physical Chemistry	كيمياء فيزيائية	Required (P)	3	3	3	0	0815-142	
5	2204-203	CHE203	Chemical Engineering Thermodynamics I	ديناميكا حرارية للهندسة الكيميائية 1	Required (P)	3	3	3	0	0815-142	
6	1900-101	SSC101	Creed and doctrines	و العقيدة المذاهب	Required (U)	2	2	2	0		
Total :						17	17	17	0		

*(Required or Elective)

* U: University requirements, C: College Requirements, P: Program Requirements

Second Year: Level-4

#	Course Number	Course Code	Course Name (English)	Course Name (Arabic)	Course Nature* (U, C, P)*	Credit Units	Contact Hours	Nature of Contact Hours		Pre-requisite(s) (if any)	Co-requisite(s) (if any)
								Theoretical	Practical		
1	0817-240	MATH240	Differential Equations	المعادلات التفاضلية	Required (C)	3	3	3	0	0817-145	
2	0815-243	CHEM243	Organic Chemistry	كيمياء عضوية	Required (P)	3	3	3	0	0815-142	
3	2204-204	CHE204	Process Fluid Mechanics	ميكانيكا الموائع في العمليات الصناعية	Required (P)	3	3	3	0	2204-200 0817-240	
4	2200-223	ENGR223	Engineering Mechanics	ميكانيكا هندسية	Required (P)	3	3	3	0	0817-145 0814-140	
5	2200-206	ENGR206	Electric Circuits	الدوائر الكهربائية	Required (P)	3	3	3	0	0814-141	
6	0901-204	CS204	Engineering Programming	البرمجة الحاسوبية لطلبة الهندسة	Required (C)	3	3	3	0	0817-144	
Total :						18	18	18	0		

*(Required or Elective)

* U: University requirements, C: College Requirements, P: Program Requirements

Third Year: Level-5

#	Course Number	Course Code	Course Name (English)	Course Name (Arabic)	Course Nature* (U, C, P)*	Credit Units	Contact Hours	Nature of Contact Hours		Pre-requisite(s) (if any)	Co-requisite(s) (if any)
								Theoretical	Practical		
1	2204-302	CHE302	Process Heat Transfer	انتقال الحرارة في العمليات الصناعية	Required (P)	3	3	3	0	2204-204	
2	2204-301	CHE301	Chemical Engineering Thermodynamics II	ديناميكا حرارية للهندسة الكيميائية 2	Required (P)	3	3	3	0	2204-203	
3	2204-303	CHE303	Separation Processes I	عمليات الفصل 1	Required (P)	3	3	3	0	2204-204	
4	2200-205	ENGR205	Materials Science	علم المواد	Required (P)	3	3	3	0	0815-142	
5	2200-310	ENGR310	Numerical Methods	طرق الحل العددية	Required (C)	3	3	3	0	0817-240 0901-204	
6	1722-137	ENG137	Technical Writing	الكتابة التقنية	Required (C)	2	2	2	0	1722-134 1722-138	
Total :						17	17	17	0		

*(Required or Elective)

* U: University requirements, C: College Requirements, P: Program Requirements

Third Year: Level-6

#	Course Number	Course Code	Course Name (English)	Course Name (Arabic)	Course Nature* (U, C, P)*	Credit Units	Contact Hours	Nature of Contact Hours		Pre-requisite(s) (if any)	Co-requisite(s) (if any)
								Theoretical	Practical		
1	2204-308	CHE308	Mass Transfer	انتقال المادة	Required (P)	3	3	3	0	2204-204 0817-244	
2	2204-304	CHE304	Reaction Engineering	هندسة التفاعلات الكيميائية	Required (P)	3	3	3	0	2200-310 2204-301 0815-243	
3	2204-307	CHE307	Biochemical Engineering	هندسة الكيمياء الحيوية	Required (P)	3	3	3	0	0816-140	2204-304
4	2204-306	CHE306	Chemical Engineering Lab I	مختبر الهندسة الكيميائية 1	Required (P)	1	3	0	3	2204-301 2204-303 1722-137	
5	2200-307	ENGR307	Engineering Economics	الاقتصاد الهندسي	Required (C)	3	3	3	0	2200-100	
6	7401-xxx	Deic xxx	University Elective	اختياري جامعة	Elective (U)	2	2	2	0		
7	0673-293	MGT292	Management Fundamentals & Skills	مبادئ الإدارة ومهاراتها	Required (C)	3	3	3	0		
Total :						18	18	17	1		

*(Required or Elective)

*U: University requirements, C: College Requirements, P: Program Requirements

*(Required or Elective)

Fourth Year: Level-7

#	Course Number	Course Code	Course Name (English)	Course Name (Arabic)	Course Nature* (U, C, P)*	Credit Units	Contact Hours	Nature of Contact Hours		Pre-requisite(s) (if any)	Co-requisite(s) (if any)
								Theoretical	Practical		
1	2204-401	CHE401	Separation Processes II	عمليات الفصل 2	Required (P)	3	3	3	0	2204-308	
2	2204-402	CHE402	Plant Design	تصميم المصانع	Required (P)	3	3	3	0	2200-307 2200-223 & 2200-205	2204-401 & 2204-410
3	2204-405	CHE405	Chem. Eng. Lab. II	مختبر الهندسة الكيميائية 2	Required (P)	1	3	0	3	2204-304	
4	2204-410	CHE410	Computer Aided Process Design Lab.	مختبر تصميم العمليات بمساعدة الحاسوب	Required (P)	1	3	0	3	2204-402	
5	2204-4xx	CHE4xx	Technical Elective	اختياري قسم	Elective (P)	3	3	3	0	فما سابع مستوى فوق	
6	2204-495	CHE495	Senior Design I	مشروع تخرج 1	Required (P)	2	2	0	2	فما سابع مستوى فوق & C: 2204-402	
7	1900-102	SSC102	Islamic culture	الثقافة الإسلامية	Required (U)	2	2	2	0		
Total :						15	15	11	4		

*(Required or Elective)

* U: University requirements, C: College Requirements, P: Program Requirements

Fourth Year: Level-8

#	Course Number	Course Code	Course Name (English)	Course Name (Arabic)	Course Nature* (U, C, P)*	Credit Units	Contact Hours	Nature of Contact Hours		Pre-requisite(s) (if any)	Co-requisite(s) (if any)
								Theoretical	Practical		
1	2204-403	CHE403	Separation Processes III	عمليات الفصل 3	Required (P)	3	3	3	0	2204-401	
2	2204-406	CHE406	Chem. Eng. Lab. III	مختبر الهندسة الكيميائية 3	Required (P)	1	3	0	3		2204-403 & 2204-404
3	2204-404	CHE404	Process Dynamics & Control	ديناميكا العمليات والتحكم	Required (P)	3	3	3	0	0817-240 & 2204-304	
4	2204-4xx	CHE4xx	Technical Elective	اختياري قسم	Elective (P)	3	3	3	0	P: سابع مستوى فوق فما	
5	2204-496	CHE496	Senior Design II	مشروع تخرج 2	Required (P)	2	2	0	2	P: 2204-495	
6	2204-4xx	CHE4xx	Technical Elective	اختياري قسم	Elective (P)	3	3	3	0	P: سابع مستوى فوق فما	
7	7401-xxx	SSCxxx	University Elective	اختياري جامعة	Elective (U)	2	2	2	0		
Total :						17	17	14	3		

*(Required or Elective)

* U: University requirements, C: College Requirements, P: Program Requirements

Field Training											
#	Course Number	Course Code	Course Name (English)	Course Name (Arabic)	Course Nature* (U, C, P)*	Credit Units	Contact Hours	Nature of Contact Hours		Pre-requisite(s) (if any)	Co-requisite(s) (if any)
								Theoretical	Practical		
1	2200-399	ENGR 399	Engineering Technical Training	التدريب الهندسي	Required (C)	0	40	0	40	6 th Level and above 1722-137	
Total :						0	40	0	40		

*(Required or Elective)

* U: University requirements, C: College Requirements, P: Program Requirements

- **Program Elective Courses** (Student must select at least 3 course)

	Course Number	Course Code	Course Name (English)	Course Name (Arabic)	Course Nature*	Credit Units	Contact Hours	Academic Level (if any)	Pre-requisite(s) (if any)	Co-requisite(s) (if any)
1	2204-305	ChE 305	Chemical Process Industries	الصناعات الكيميائية	(P)	3	3	8	P: 0815-243	
2	2204-407	ChE 407	Chemical Engineering Optimization	طرق اختيار الأمثل في الهندسة الكيميائية	(P)	3	3	8	P: 2200-310	
3	2204-408	ChE 408	Chemical Process Safety	السلامة في العمليات الصناعية الكيميائية	(P)	3	3	8	P: 2204-304	
4	2204-420	ChE 420	Experimental Design and Data Analysis	تصميم التجارب وتحليل النتائج المعملية	(P)	3	3	8	P: 2200-310	
5	2204-421	ChE 421	Corrosion Engineering	هندسة التآكل	(P)	3	3	8	P: 2200-205	
6	2204-430	ChE 430	Polymer Engineering	هندسة المبلمرات	(P)	3	3	8	P: 0815-243	
7	2204-431	ChE 431	Natural Gas Engineering	هندسة الغاز الطبيعي	(P)	3	3	8	P: 0815-243	
8	2204-432	ChE 432	Petroleum Refining Engineering	هندسة تكرير البترول	(P)	3	3	8	P: 0815-243	
9	2204-433	ChE 433	Petrochemical Industries	الصناعات البتروكيميائية	(P)	3	3	8	P: 0815-243	
10	2204-441	ChE 441	Introduction to Environmental Engineering	مقدمة في هندسة البيئة	(P)	3	3	8	P: 2204-303	
11	2204-442	ChE 442	Industrial Water Treatment	معالجة المياه الصناعية	(P)	3	3	8	P: 2204-303	

12	2204-443	ChE 443	Industrial Wastewater Treatment	معالجة المياه العادمة الصناعية	(P)	3	3	8	P: 2204-303	
13	2204-444	ChE 444	Water Desalination	تحلية المياه	(P)	3	3	8	P: 2204-308	
14	2204-452	ChE 452	Air Pollution and Control	تلوث الهواء والتحكم به	(P)	3	3	8	P: 2204-303	
15	2204-481	ChE 481	Undergraduate Research I	البحث العلمي لطالبة البكالوريوس 1	(P)	3	3	8	"P: مستوى سابع & فما فوق	
16	2204-482	ChE 482	Undergraduate Research II	البحث العلمي لطالبة البكالوريوس 2	(P)	3	3	8	P: 2204-308"	
17	2204-483	ChE 483	Special Topics I	موضوعات خاصة 1	(P)	3	3	8	P: مستوى سابع فما فوق	
18	2204-484	ChE 484	Special Topics II	موضوعات خاصة 2	(P)	3	3	8	P: مستوى سابع فما فوق	
Total Credit Units Required						9	9			

*(Required or Elective

- **University Requirements** (Student must select 2 electives)

	Course Number	Course Code	Course Name (English)	Course Name (Arabic)	Course Nature*	Credit Units	Contact Hours	Academic Level (if any)	Pre-requisite(s) (if any)	Co-requisite(s) (if any)
1	1900-101	SSC101	Creed and doctrines	و العقيدة المذاهب	Required	2	2	1-8		
2	1900-102	SSC102	Islamic culture	الثقافة الإسلامية	Required	2	2	1-8		
3	1900-103	SSC103	Islamic Morals and Ethics	الأخلاق الإسلامية وأداب المهنة	Elective	2	2	1-8		
4	1900-104	SSC104	Studies in the Biography of the Prophet	دراسات في السيرة النبوية	Elective	2	2	1-8		
5	1900-105	SSC105	Medical jurisprudence	الفقه الطبي	Elective	2	2	1-8		
6	1900-106	SSC106	Economics & Politics in Islam	الاقتصاد والسياسة في الإسلام	Elective	2	2	1-8		
7	1900-107	SSC107	Islamic Social & Family Behavior	النظام الاجتماعي السلوك و الاسري	Elective	2	2	1-8		
8	1900-108	SSC108	Management & Entrepreneurship	الإدارة وريادة الاعمال	Elective	2	2	1-8		
9	1900-109	SSC109	Health & Fitness	صحة ولياقة	Elective	2	2	1-8		
10	1900-110	SSC110	Research skills	مهارات البحث	Elective	2	2	1-8		
11	1900-111	SSC111	Volunteer work	العمل التطوعي	Elective	2	2	1-8		
12	1900-112	SSC112	Medicine: Type and use	الدواء: النوع والاستخدام	Elective	2	2	1-8		
13	1900-113	SSC113	Human Rights in Islam	حقوق الانسان في الإسلام	Elective	2	2	1-8		
14	1900-114	SSC114	Food and Nutrition	الغذاء والتغذية	Elective	2	2	1-8		
Total Credit Units Required						8	8			

*(Required or Elective)