

DEGREE REQUIREMENTS - Major in Chemical Engineering

A minimum of 131 credit hours are required to complete the major in Chemical Engineering, including the following:

- A minimum of 33 credit hours in core curriculum requirements.
- A minimum of 27 credit hours of college requirements.
- A minimum of 59 credit hours of major requirements courses.
- A minimum of 12 credit hours of major electives courses.

Core Curriculum Program

A minimum of 33 credit hours are required to complete the Core Curriculum Program as detailed below.

Identity and Communication Package (15 - 18 CH)

The number of credit hours required for this package ranges from 15 to 18, depending on the program. The specific courses to be completed by students are identified in the degree requirements of each program and consist of some combination of the courses listed below.

- ARAB 100 Arabic I
- ARAB 107 Arabic Language Basics
- ARAB 109 Language Skills
- ARAB 110 Introduction to Literature and Language
- ARAB 200 Arabic II
- ARAB 201 Arabic Language Basics Adv.
- DAWA 111 Islamic Culture
- ENGL 110 English I
- ENGL 111 English II
- ENGL 150 Essay Writing I
- ENGL 151 Advanced Reading Comprehension
- ENGL 202 English Language I – Post Foundation
- ENGL 203 English Language II – Post Foundation
- HIST 121 History of Qatar

Social/Behavioral Sciences package (3 CH)

A minimum of 3 credit hours from courses listed in the CCP defined Social/Behavioral Sciences package including:

- EDUC 200 Education and Societal Problems
- EDUC 203 Family Relationships
- EPSY 201 Introduction to Psychology
- EPSY 205 Social Psychology
- HONS 102 Introduction to Honors
- INTA 101 Political and Social Thoughts
- INTA 103 Introduction to International Relations
- INTA 206 Globalization
- MCOM 103 Media and Society

- PSYC 201 Fundamentals of Psychology
- PSYC 206 Introduction to Social Psychology
- SOCI 120 Introduction to Sociology
- SOCI 121 Introduction to Anthropology
- SOWO 101 Introduction to Social Work and Welfare
- SOWO 361 Society and Human Rights
- UNIV 200 Innovation, Leadership and Civic Engagement

Natural Science/Mathematics package (3 CH)

A minimum of 3 credit hours from courses listed in the CCP defined Natural Science/Mathematics package including:

- BIOL 101 Biology I
- BIOL 110 Human Biology
- CHEM 101 General Chemistry I
- GEOL 101 Principles of Geology
- GSCN 100 Science for Life
- MATH 101 Calculus I
- MATH 103 Intermediate Algebra
- MATH 104 Basic Geometry and Measures
- MATH 105 Mathematics in Society

Humanities /Fine Arts package (0 - 3 CH)

The number of credit hours required for this package ranges from 0 to 3, depending on the program. When applicable, programs require the completion of 3 credit hours from courses listed in the CCP defined Humanities / Fine Arts package, including:

- GEOG 110 General Geography
- GEOG 241 Geography of Qatar
- HIST 217 Islamic Civilization
- HIST 222 The Gulf in Modern Period
- PHIL 110 Introduction to Philosophy

Core Knowledge and Skills Package (0 - 6 CH)

The number of credit hours required for this package range from 0 to 6, depending on the program. When applicable, the 6 credit hours can be taken from courses listed in the CCP defined Core Knowledge and Skills package, including:

- CHME 100 Energy for Life
- CMPS 185 Fundamentals of Cybersecurity
- DAWA 117 Ethics
- DAWA 118 Introduction to Islamic Creed Studies
- DAWA 210 Philosophy of Sirah
- DAWA 222 Dialogue of Civilizations
- EDUC 201 Research Methods

- LAWC 100 Legal Culture
- LAWC 102 Human Rights
- MAGT 101 Principles of Management
- PUBH 100 Your Health
- SOCI 200 Sustainable Development
- SPSC 101 Traditional and New Games
- STAT 101 Statistics I

Supplemental College/Program Package (0 - 12 CH)

The number of credit hours required for this package ranges from 0 to 12, depending on the program. When applicable, the required number of credit hours can be taken from a list of courses specific to each program and/or college. The specific courses to be completed by students are identified in the degree requirements of each program.

- PHYS 191 General Physics for Engineering I
- PHYS 192 Experimental General Physics for Engineering I
- PHYS 193 General Physics for Engineering II
- PHYS 194 Experimental General Physics for Engineering II
- CHEM 101 General Chemistry I
- CHEM 103 Experimental General Chemistry I

UNIV 100 First Year Seminar is part of the CCP Supplemental College / Program Core Requirements package for concerned colleges. It is a Core Curriculum requirement of all programs offered at the College of Arts and Sciences, the College of Business and Economics, the College of Education, the College of Health Sciences (excluding Major of Physical Therapy), the College of Law and the College of Sharia and Islamic Studies. All mentioned students in these colleges are required to complete a total of 3 CHs by completing UNIV 100.

College Requirements (27 CH)

Students must complete a minimum of 27 credit hours in college requirements:

- MATH 102 Calculus II
- MATH 211 Calculus III
- MATH 217 Mathematics for Engineers
- GENG 106 Computer Programming
- GENG 107 Engineering Skills and Ethics
- GENG 200 Probability and Statistics for Engineers
- GENG 300 Numerical Methods
- GENG 360 Engineering Economics
- GENG 231 Materials Science

Major Requirements Courses (59 CH)

Students must complete a minimum of 59 credit hours in major requirements courses:

- CHEM 102 General Chemistry II
- CHEM 104 Experimental General Chemistry II

- CHEM 209 Fundamentals in Organic Chemistry
- CHME 201 Introduction to Chemical Engineering I
- CHME 202 Introduction to Chemical Engineering II
- CHME 212 Chemical Engineering Thermodynamics I
- CHME 213 Fluid Mechanics
- CHME 235 Physical Chemistry for Chemical Engineers
- CHME 311 Heat Transfer
- CHME 312 Chemical Engineering Thermodynamics II
- CHME 313 Mass Transfer I
- CHME 314 Chemical Reaction Engineering
- CHME 315 Mass Transfer II
- CHME 324 Fluid Mechanics and Heat Transfer Lab
- CHME 325 Unit Operations Lab
- CHME 327 Computer Methods in Chemical Engineering
- CHME 399 Practical Training
- CHME 406 Chemical Process Industries
- CHME 421 Senior Design Project I
- CHME 422 Senior Design Project II
- CHME 423 Process Control
- CHME 426 Reaction Engineering and Process Control Lab
- CHME 458 Process Safety and Hazards Prevention

Major Electives Courses (12 CH)

Students must complete a minimum of 12 credit hours in major elective courses:

- CHME 413 Process Modeling & Simulation
- CHME 431 Petroleum Refining Process
- CHME 433 Petrochemical Technology
- CHME 435 Polymer Engineering
- CHME 445 Desalination
- CHME 451 Introduction to Gas Engineering
- CHME 454 Natural Gas Treatment
- CHME 455 Introduction to Biochemical Engineering
- CHME 462 Pollution Control
- CHME 464 Wastewater Treatment
- CHME 466 Special Topics in Chemical Engineering I
- CHME 467 Special Topics in Chemical Engineering II
- CHME 470 Fund of Petroleum Engineering
- CHME 474 Process Equipment Design
- CHME 477 Process Integration
- CHME 486 Corrosion Engineering
- CHME 488 Undergraduate Research

Study Plan

Bachelor of Science in Chemical Engineering

FIRST YEAR (33 credit hours)			
Term	Course #	Course Title	Credit Hours
Fall	ENGL 202	English Language I Post Foundation	3
	ARAB 100	Arabic Language I	3
	MATH 101	Calculus I	3
	CHEM 101	General Chemistry I	3
	CHEM 103	Experimental General Chemistry I	1
	GENG 106	Computer Programming	3
Total Credit Hours in Semester			16
Spring	ENGL 203	English Language II Post Foundation	3
	MATH 102	Calculus II	3
	PHYS 191	General Physics for Engineering I	3
	PHYS 192	Experimental General Physics for Engineering I	1
	CHEM 102	General Chemistry II	3
	CHEM 104	Experimental General Chemistry II	1
	GENG 107	Engineering Skills and Ethics	3
Total Credit Hours in Semester			17

SECOND YEAR (34 credit hours)			
Term	Course #	Course Title	Credit Hours
Fall	MATH 211	Calculus III	3
	PHYS 193	General Physics for Engineering II	3
	PHYS 194	Experimental General Physics for Engineering II	1
	CHEM 209	Fundamentals in Organic Chemistry	3

	CHEM 235	Physical Chemistry for Chemical Engineers	3
	CHME 201	Introduction to Chemical Engineering I	3
Total Credit Hours in Semester			16
Spring	HIST 121	History of Qatar	3
	GENG 300	Numerical Methods	3
	CHME 202	Introduction to Chemical Engineering II	3
	CHME 212	Chemical Engineering Thermodynamics I	3
	CHME 213	Fluid Mechanics	3
	DAWA 111	Islamic Culture	3
Total Credit Hours in Semester			18

THIRD YEAR (36 credit hours)			
Term	Course #	Course Title	Credit Hours
Fall	MATH 217	Mathematics for Engineers	3
	GENG 200	Probability and Statistics for Engineers	3
	CHME 311	Heat Transfer	3
	CHME 312	Chemical Engineering Thermodynamics II	3
	CHME 313	Mass Transfer I	3
	CHME 324	Fluid Mechanics and Heat Transfer Lab	1
Total Credit Hours in Semester			16
Spring	GENG 231	Materials Science	3
	GENG 360	Engineering Economics	3
	CHME 314	Chemical Reaction Engineering	3
	CHME 315	Mass Transfer II	3
	CHME 325	Unit Operations Lab	1
	CHME 327	Computer Methods in Chemical Engineering	1
		Social/Behavioral Sciences Package	

Total Credit Hours in Semester			17
Summer	CHME 399	Practical Training	3
Total Credit Hours in Semester			3

FOURTH YEAR (28 credit hours)			
Term	Course #	Course Title	Credit Hours
Fall	CHME 421	Senior Design Project I	3
	CHME 423	Process Control	3
	CHME 406	Chemical Process Industries	3
		Major Elective I	3
		Major Elective II	3
Total Credit Hours in Semester			15
Spring	CHME 422	Senior Design Project II	3
	CHME 426	Reaction Engineering and Process Control Lab	1
		Major Elective III	3
		Major Elective IV	3
	CHME 458	Process Safety and Hazard Prevention	3
Total Credit Hours in Semester			13