

# CHEMICAL ENGINEERING TECHNOLOGY: BACHELOR

## Overview

### Program Mission

Prepare graduates to be successful as technicians and engineers embracing innovation and discovery and striving for life-long learning and professional development in the field of Chemical Engineering Technology.

### Program Description

The Bachelor of Chemical Engineering Technology program provides an excellent broad education with a focused area of specialization options to cater to the global and local industries. The Bachelor of Chemical Engineering Technology curriculum covers the laws of chemistry, physics, and mathematics which form the basis of many industrial processes in areas such as energy, oil and gas, chemical processing, etc. The program prepares students for positions as engineers with the technical and managerial skills necessary to enter careers in the design, manufacturing, operation, and maintenance of chemical processes. Students will gain practical knowledge in heat and mass transfer in plants and process control design projects. The Bachelor of Chemical Engineering Technology curriculum produces high-quality engineers known for productivity, timeliness, dedication, and competence in the workplace.

Graduates typically have strengths in applied design, development, and implementation of chemical engineering systems. They have the ability to work logically, accurately and efficiently; to gather and use information effectively; and to continue enhancing their careers through lifelong learning. The program stresses the effective use of technology, information resources and engineering tools. The program instills leadership qualities based on moral and ethical principles coupled with sound and rational judgment. Finally, the program is designed to prepare interested students for graduate studies in Chemical Engineering Technology and other related areas of professional practice.

### Program Goals

1. Provide chemical engineering professionals with the technical knowledge and skills required by the industry to perform to highest level of industry standards.
2. Prepare graduates for a successful career as effective decision makers with strong communication and teamwork skills and an understanding of the global, ethical and social implications of the industry and engineering profession.
3. Prepare graduates with strong commitment and strategic mindset to lifelong learning, continuing education, and professional growth.
4. Prepare graduates with leadership qualities and commitment to contribute actively in achieving Abu Dhabi Vision 2030.

### Program Learning Outcomes

Upon graduation, a HCT graduate in Bachelor of Chemical Engineering Technology should demonstrate:

1. An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve

broadly-defined engineering problems appropriate to the Chemical Engineering Technology.

2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the Chemical Engineering Technology.
3. An ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes;
5. An ability to function effectively as a member as well as a leader on technical teams.
6. An ability to develop and evaluate a business plan to transform an engineering design (systems, products, services and solutions) into a business opportunity utilizing entrepreneurial skills and knowledge

## Requirements

### Completion Requirements

Bachelor of Chemical Engineering Technology

*Students must successfully complete a minimum of 132 credits, including:*

Code	Title	Credit Hours
Program Core Courses		81
Program Elective Courses		6
Mathematics and Science Courses		12
General Studies course		33
<b>Total Credit Hours</b>		<b>132</b>

Code	Title	Credit Hours
<b>Chemical Engineering Core Courses</b>		
Required Credits: 81		
CHE 2113	Applied Chemistry	3
CHE 2123	Analytical Chemistry	3
CHE 2133	Organic Chemistry	3
CHE 2202	Introduction to Chemical Process Industries	2
CHE 2213	Chemical Engineering Principles	3
CHE 2253	Materials and Corrosion	3
CHE 2413	Oil and Gas Processing Technologies	3
CHE 2422	Separation Process Principles	2
CHE 2453	Fluid Mechanics	3
CHE 2903	Sophomore Design Project	3
CHE 3313	Chemical Engineering Thermodynamics	3
CHE 3323	Mass Transfer	3
CHE 3403	Chemical Heat Transfer	3
CHE 3413	Unit Operation 1	3
CHE 3513	Equipment and Plant Design	3
CHE 3613	Chemical Reaction Engineering	3
CHE 4613	Chemical Engineering Modelling and Simulation	3
CHE 4623	Chemical Process Control	3

CHE 4902	Capstone Design Project I	2
CHE 4912	Capstone Design Project II	2
EGN 1001	Engineering Workshop	1
EGN 1133	Design Thinking in Technology	3
EGN 2712	Applied Programming for Engineers	2
EGN 2803	Work Placement I	3
EGN 3012	Project Management	2
EGN 3212	Economics for Engineering	2
EGN 3803	Work Placement II	3
ELE 2153	Electrical Eng Fundamentals	3
EGN 4873	Data Analytics	3
EGN 4883	Introduction to Artificial intelligence	3

### Chemical Engineering Elective Courses

Required Credits: 6

CHE 4293	Production Engineering (Offshore)	3
CHE 4403	Gas Processing	3
CHE 4413	Chemical Process HAZOP and Risk Analysis	3
CHE 4423	Optimisation and Application in Refinery	3
CHE 4433	Petroleum and Petrochemical Processing	3
CHE 4443	Industrial Water and Effluent Treatment	3
CHE 4863	Special Topics in Chemical Engineering	3
CHE 4893	Applied Topics in Chemical Engineering	3

### Mathematics and Science Required Courses

Required Credits: 12

CHM 1103	Engineering Chemistry	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
PHY 1203	Physics of Electricity and Magnetism	3

### General Studies

Required Credits: 33

### English, Arabic or other Languages

Required Credits: 12

LSC 1103, AES 1013, AES 1033 and LSC 2193

### Humanities or Art

Required Credits: 3

AES 1003

### Information Technology and Mathematics

Required Credits: 6

ICT 2013 and MTH 1113

### The Natural Sciences

Required Credits: 3

PHY 1103

### The Social or Behavioral Sciences

Required Credits: 9

LSS 1003, LSS 1123 and BUS 2403

Description	Data
Total Required Credits	132
Maximum Duration of Study	6 years
Minimum Duration of Study	4 years
Cost Recovery Program	No

Program Code BCHET

Major Code CHE

## Ideal Study Plan Recommended Sequence of Study

### Year 1

Semester 1		Credit Hours
CHM 1103	Engineering Chemistry	3
EGN 1133	Design Thinking in Technology	3
LSC 1103	Professional Communication and Reporting	3
MTH 1203	Calculus I	3
PHY 1103	Physics of Mechanics and Motion	3
EGN 1001	Engineering Workshop	1
<b>Credit Hours</b>		<b>16</b>

### Semester 2

AES 1013	Arabic Communications	3
CHE 2202	Introduction to Chemical Process Industries	2
CHE 2213	Chemical Engineering Principles	3
ICT 2013	Computational Thinking and Coding	3
MTH 1113	Statistics for Engineering	3
PHY 1203	Physics of Electricity and Magnetism	3
<b>Credit Hours</b>		<b>17</b>

### Year 2

#### Semester 3

CHE 2113	Applied Chemistry	3
CHE 2123	Analytical Chemistry	3
CHE 2253	Materials and Corrosion	3
CHE 2453	Fluid Mechanics	3
ELE 2153	Electrical Eng Fundamentals	3
<b>Credit Hours</b>		<b>15</b>

#### Semester 4

CHE 2133	Organic Chemistry	3
CHE 2413	Oil and Gas Processing Technologies	3
CHE 2422	Separation Process Principles	2
CHE 2903	Sophomore Design Project	3
CHE 3313	Chemical Engineering Thermodynamics	3
CHE 3403	Chemical Heat Transfer	3
<b>Credit Hours</b>		<b>17</b>

#### Summer

EGN 2803	Work Placement I	3
<b>Credit Hours</b>		<b>3</b>

### Year 3

#### Semester 5

CHE 3323	Mass Transfer	3
CHE 3413	Unit Operation 1	3
EGN 2712	Applied Programming for Engineers	2
EGN 3212	Economics for Engineering	2
MTH 2103	Calculus II	3
LSS 1003	Life and Future Skills	3
<b>Credit Hours</b>		<b>16</b>

#### Semester 6

AES 1003	Emirati Studies	3
CHE 3613	Chemical Reaction Engineering	3
EGN 3012	Project Management	2
LSS 1123	Basic Research Methods	3
LSC 2193	Applied Skills Capstone	3
<b>Credit Hours</b>		<b>14</b>

<b>Summer</b>		
EGN 3803	Work Placement II	3
<b>Credit Hours</b>		<b>3</b>
<b>Year 4</b>		
<b>Semester 7</b>		
CHE 3513	Equipment and Plant Design	3
CHE 4613	Chemical Engineering Modelling and Simulation	3
CHE 4902	Capstone Design Project I	2
EGN 4873	Data Analytics	3
1 Elective Course		3
<b>Credit Hours</b>		<b>14</b>
<b>Semester 8</b>		
AES 1033	Islamic Culture	3
BUS 2403	Innovation and Entrepreneurship	3
CHE 4623	Chemical Process Control	3
CHE 4912	Capstone Design Project II	2
EGN 4883	Introduction to Artificial intelligence	3
1 Elective Course		3
<b>Credit Hours</b>		<b>17</b>
<b>Total Credit Hours</b>		<b>132</b>

## Faculty and Academic Staff Abu Dhabi Men's

**Abdelsalam Efhaima**, PhD Chemical Engineering, Missouri Univ of Science &Tech, USA

**Abdul Rauf**, PhD Chemical Metallurgy, Catholic University of Leuven, Belgium

**Amjad Shaikh**, PhD Chemical Engineering, University of Sheffield, UK

**Asfaw Gezae Daful**, PhD Chemical Engineering, Universitat Rovira i Virgili, Spain

**El Awad Osman**, Masters Chemical Engineering, University of Bradford, UK

**Marie Lordon**, PhD Organic and Bio-organic Chemistry, Sorbonne Université (Pierre and Marie Curie Campus), France

**Muhammad Waqas Anjum**, PhD Bioscience Engineering (Membrane Technology), KU Leuven, Belgium

## Western Region Colleges

**Abdelrahim Minalla**, Masters Chemical Engineering, San Jose State University, USA

**Meegalla Chandraratne**, PhD Computer Vision & Bio Processing, Lincoln University, New Zealand

**Sathiyamoorthy Manickkam**, Masters Chemical Engineering, Bharathidasan University, India