

CHEMICAL ENGINEERING TECHNOLOGY (BCHET): BACHELOR

Overview

Bachelor of Chemical Engineering Technology (BCHET)

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. Students will have the option to graduate with a Diploma in Chemical Engineering Technology upon the successful completion of 81 credits inclusive of the 8 week Work Placement.

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

Students seeking the Bachelor of Chemical Engineering Technology degree must successfully complete the following minimum requirements:

1. A minimum of 146 credits, as follows:
 - a. A minimum requirement of 92 credits of the program major as follows:
 - i. a minimum of 80 core courses including Work Placement for 16 weeks
 - ii. a minimum of 12 credits in electives of the major
 - b. A minimum requirement of 21 credits in Math and Science courses
 - c. A minimum requirement of 33 credits in General Studies according to the General Studies breakdown and as advised in the study plan of the program.
2. A minimum CGPA of 2.00.

Code	Title	Credit Hours
Chemical Engineering Core Courses		
Required Credits: 80		
CHE 2113	Applied Chemistry	3
CHE 2123	Analytical Chemistry	3
CHE 2133	Organic Chemistry	3
CHE 2202	Chemical Engineering Principles I	2
CHE 2213	Chemical Engineering Principles II	3
CHE 2253	Materials and Corrosion	3
CHE 2413	Oil and Gas Processing Technologies	3
CHE 2422	Petroleum Chemistry Testing	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 1133	Design Thinking in Technology	3
EGN 2712	Applied Programming for Engineers	2
EGN 2806	Work Placement I	6
EGN 3012	Project Management	2
EGN 3212	Economics for Engineering	2
EGN 3806	Work Placement II	6
ELE 2153	Electrical Eng Fundamentals	3

Chemical Engineering Elective Courses

Required Credits: 12

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	Directed Study	3

Mathematics and Science Required Courses

Required Credits: 21

CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
MTH 2503	Introduction to Differential Equations	3
MTH 3013	Calculus III	3
PHY 1203	Physics II	3

General Studies

Required Credits: 33

English, Arabic or other Languages

Required Credits: 12

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

Description	Data
Total Required Credits	146
Maximum Duration of Study	6 years
Cost Recovery Program	No
Minimum Duration of Study	4 years
Program Code	BCHE
Major Code	CHE

Ideal Study Plan

Recommended Sequence of Study

Year 1**Semester 1**

		Credit Hours
EGN 1133	Design Thinking in Technology	3
LSC 1103	Professional Communication and Reporting	3
LSS 1003	Life and Future Skills	3
MTH 1103	Pre Calculus	3
PHY 1103	Physics I	3
Credit Hours		15

Semester 2

LSC 2103	Academic Reading and Writing II	3
LSS 1123	Basic Research Methods	3
MTH 1113	Statistics for Engineering	3
MTH 1203	Calculus I	3
PHY 1203	Physics II	3
Credit Hours		15

Summer

AES 1013	Arabic Communications I	3
CHM 1103	Engineering Chemistry	3
Credit Hours		6

Year 2**Semester 1**

AES 1003	Emirati Studies	3
CHE 2113	Applied Chemistry	3
CHE 2123	Analytical Chemistry	3
CHE 2202	Chemical Engineering Principles I	2
CHE 2253	Materials and Corrosion	3
ELE 2153	Electrical Eng Fundamentals	3
Credit Hours		17

Semester 2

CHE 2133	Organic Chemistry	3
CHE 2213	Chemical Engineering Principles II	3
CHE 2413	Oil and Gas Processing Technologies	3
CHE 2422	Petroleum Chemistry Testing	2
CHE 2903	Sophomore Design Project	3
ICT 2013	Computational Thinking and Coding	3
Credit Hours		17

Summer

CHE 2453	Fluid Mechanics	3
EGN 2806	Work Placement I *	6
MTH 2103	Calculus II	3
Credit Hours		12

Year 3**Semester 1**

CHE 3313	Chemical Engineering Thermodynamics	3
CHE 3403	Chemical Heat Transfer	3
EGN 2712	Applied Programming for Engineers	2
EGN 3012	Project Management	2
BUS 2403	Innovation and Entrepreneurship	3

MTH 2503	Introduction to Differential Equations	3
	Credit Hours	16
Semester 2		
CHE 3323	Mass Transfer	3
CHE 3413	Unit Operation 1	3
CHE 3613	Chemical Reaction Engineering	3
EGN 3212	Economics for Engineering	2
MTH 3013	Calculus III	3
	Credit Hours	14
Summer		
EGN 3806	Work Placement II	6
	Credit Hours	6
Year 4		
Semester 1		
CHE 3513	Equipment and Plant Design	3
CHE 4613	Chemical Engineering Modelling and Simulation	3
CHE 4902	Capstone Design Project I	2
2 Elective Courses		6
	Credit Hours	14
Semester 2		
AES 3003	Professional Arabic	3
CHE 4623	Chemical Process Control	3
CHE 4912	Capstone Design Project II	2
2 Elective Courses		6
	Credit Hours	14
	Total Credit Hours	146

*Work Placement I shall start after year 2 Summer Semester is completed.

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

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, University Pierre and Marie Curie, France

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

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

Thomas Adebayo, PhD Petroleum Engineering, Covenant University, Nigeria

Zin-Eddine Dadach, PhD Chemical Engineering, Universite Laval, Canada

Western Region Colleges

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

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

Kamal Al-Malah, PhD Chemical Engineering, Oregon State University, USA

Sathiyamoorthy Manickam, Masters Chemical Engineering, Bharathidasan University, India