

APPROVED

Bachelor of Engineering Technology (Chemical and Industrial Processes Engineering)
 Faculty of EDICT (Engineering, Design and ICT)

Programme Title (Arabic)	(فءىءان صلاا اءاىلم عل او فءىءاىمى لكلا قسءنل) قسءنل ءىنقء فء سول الكبل					
Acronym / Abbreviation *	BEngTech Chemical					
Nature	Major					
Programme Code	ENT8070	Programme Duration	4 Year/Cycle	Programme Level	Level 8	
Programme Credits	480	Award Category	Bachelors			
Effective From	2023/2024 Sem 1					
Owner	School of Engineering					
Professional Body						
Professional Body	Recognition Status	Effective From	Interim Date	Professional Bodies	Contact Person	Evidence
Employability Skills	Yes	30/04/2023		Employability Skills		
Target Groups *						
High School Graduates						
International Students						
Unemployed						
Bahrain Polytechnic students from another programme						
Other						
Qualification Completion Requirements Criteria	Awarded where candidates have met the following requirements: <ul style="list-style-type: none">Successful completion of, or exemption from, all courses listed in Schedule A.Successful completion of 30 credits from EDICT Electives and 15 Credits of Non-EDICT Electives.Accumulation of at least 35 credits from courses in Schedule B.Completion of National Requirement courses.Completion of courses to accumulate a total of 480 credits.Completion of 80 days of work experience.					

<p>Programme Overview *</p>	<p>The Bachelor of Engineering Technology Programme offered at Bahrain Polytechnic is composed of six majors; Mechanical, Electronics, Electrical, Electromechanical, Chemical engineering and the Communications and Networks, all placed at NQF level 8. Each of these majors has its own exit qualification which is an Associate Degree in Engineering Technology at NQF level 7.</p> <p>The BEngTech qualification is designed and delivered, after extensive interaction with the Bahrain Engineering environment and society, in order to provide work-ready engineering technology graduates. The graduates will acquire advanced technical knowledge in their respective fields, specialized practical skills and valuable employability skills that will allow them to provide the drive for the transformation towards a knowledge-based economy in Bahrain.</p> <p>The BEngTech qualification is delivered over a 4-year period consisting of 8 semesters. Students are expected to take 60 credits on average per semester and thus at the completion of their studies, they should have accumulated a total of 480 credits. In those 480 credits, there exist 15 credits of non-faculty elective courses, 15 credits of National Requirements courses, 30 credits of English courses and the remaining 420 credits are taken from Core and Specialized Engineering Courses. Additionally, the students are required to complete a total of 80 work placement days. All majors share a common 1st year with courses that lay the foundations of Engineering Technology and provide the students with the required knowledge to succeed in their chosen specialization.</p> <p>The uniqueness of the BEngTech qualification at Bahrain Polytechnic is the strong commitment of the Institution to deliver these qualifications using student-centred learning and more specifically, the Problem-Based Learning (PBL) methodology. Using this learning methodology allows the programme to provide the required theoretical knowledge, practical skills and employability skills to graduates and thus achieve the mission of producing enterprising and work-ready graduates for the Bahrain society and economy. The PBL methodology is implemented through the design of appropriate assignments that motivate the students to provide a solution to an Engineering design and/or analysis problem. Students are required to complete lab experiments, software practical assignments, design projects, controlled assignments such as theory tests and to provide rational justification for their work through the preparation of technical reports, presentations and posters. The theoretical knowledge given to the students is provided through a balanced combination of lectures, tutorials, experimental work, project work and one-to-one supervision with faculty members.</p>

Entry and Selection *	<p>General entry requirements such as secondary school achievements, English and Mathematics are described in the Student Admission Policy A/AB/010. Specific entry requirements for this Programme, beyond those described in the Student Admission Policy are as follows:</p> <p>Academic</p> <p>Successful completion of:</p> <ul style="list-style-type: none"> • AP4203 English 2 • AP4102 Mathematics 2 (Technical) <p>or</p> <p>Passing English and Mathematics selection tests at the required level or equivalent.</p>
Selection and Criteria and Process *	<p>Where there are more applicants who meet the programme entry criteria than can be accepted, the following shall be used:</p> <p>Selection Criteria</p> <ul style="list-style-type: none"> • Successful completion of the Foundation Program at Bahrain Polytechnic and demonstration of a commitment to study. • Results from programme entry tests. • Work experience and prior educational achievement. <p>Selection Process</p> <ul style="list-style-type: none"> • Applicants may be required to attend an interview.

Major Selection Criteria *	<p>Where the number of applicants exceeds the available places the following criteria for selection apply:</p> <ul style="list-style-type: none"> • First priority to students who have completed all courses in the common first year of the degree. • Second priority will be those with highest combined GPAs from EN6000 Electrical Fundamentals and EN6903 Mechanical Fundamental
Accreditation / External Approval Requirements *	<p>Bachelor of Engineering Technology (Chemical and Industrial Processes) shall be submitted for potential IET, UK accreditation in 2023 or after the first completion of all offered courses subject, to the accreditation body's requirement and review.</p>
Attendance Requirements *	<p>Attendance requirements are described in the policy Student Attendance A/AB/006. There are no programme-specific attendance requirements.</p>

<p>Qualification Overview *</p>	<p>The Chemical major is a technically strong qualification that aims to provide for the needs industry nationally, regionally and internationally. The qualification has a wide base of Chemical Engineering knowledge and skills upon which graduates can build to reflect the wide range of fields and industries that are present locally and regionally. There is emphasis on metals manufacturing, process technology systems, thermodynamics, sustainability and control to suit the petrochemical, petroleum, aluminum and manufacturing industries.</p> <p>Students gain advanced theoretical knowledge and specialist practical skills in the areas of chemical fundamental, workshop practice, thermodynamics and fluid mechanics, manufacturing process, heat transfer, materials and energy balance, industrial chemistry, mass transfer operations, chemical reaction engineering, and pollution control.</p>
<p>Qualification Aim *</p>	<p>The aim of this qualification is to provide students with a comprehensive set of skills for employment as engineering technologists competent at analysing, solving, managing and taking responsibility for broadly defined mechanical engineering problems and activities.</p> <p>The qualification will provide students with:</p> <ul style="list-style-type: none"> • Theoretical and practical skills to solve engineering problems with the design and management of processes in the broad area of Chemical/Process engineering, Chemical Process Principles, Mass Transfer Operations, Chemical Reaction Engineering, Mechanical Operations, Fluid Mechanics, Process Heat Transfer, Chemical Engineering Thermodynamics, Process dynamics and Control, Process Safety, Chemical Process Technologies, Plant Design and Economics, Pollution and Control for the chemical process industries and allied Sector. • Skills necessary for effective communication, analysis, teamwork, documentation and evaluation of systems through the inclusion of courses in English language, mathematics, project management, ethics and social responsibility.

<p>Graduate Pathways and Destination *</p>	<p>This qualification equips graduates to start their engineering career as:</p> <p>Fresh/Apprentice/Intern/Trainee/Early career trainee/Junior graduate chemical engineer to be employed at the following functions of chemical & allied process industries and institutions:</p> <ul style="list-style-type: none"> • Chemical Production • Chemical Product Quality • Process Engineering Laboratories Functions • Chemical Products Research & Development • Technical Sales & Marketing • Engineering Product export/import <p>This qualification prepares students for the following pathways to further learning:</p> <ul style="list-style-type: none"> • Master of Engineering Technology <p>Graduates from the Bachelor of Engineering Technology programme who wish to continue their studies may apply to any university for admission into their programme. For an engineering technology degree, it is common practice for a university to first enroll the student into a post-graduate diploma programme and based on progress made, transfer them to a full Masters programme.</p>				
	<p>Employability Skills Generic Definition:</p> <table border="1" data-bbox="465 1294 1787 1493"> <tr> <td data-bbox="465 1294 736 1465"> <p>Communication</p> </td><td data-bbox="736 1294 1787 1465"> <p>Communicate in ways that contribute to productive and harmonious relationships across employees and customers.</p> </td></tr> <tr> <td data-bbox="465 1465 736 1493"></td><td data-bbox="736 1465 1787 1493"></td></tr> </table>	<p>Communication</p>	<p>Communicate in ways that contribute to productive and harmonious relationships across employees and customers.</p>		
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Other Information *	Team work	Work effectively independently and in collaboration with others.
	Problem solving	Think critically and respond appropriately to changing needs within a growing and diversifying economy.
	Initiative and enterprise	Apply resourcefulness, innovation and strategic thinking to a range of workplace situations.
	Planning and organisation	Plan and manage their working lives.
	Self-management	Demonstrate self-discipline and adaptability and be able to plan and achieve personal and professional goals.
	Learning	Understand the need for and engage with continuous learning throughout the lifespan.
	Technology	Utilize information technology effectively and ethically in their personal and professional lives.

Programme Learning Outcomes

On successful completion of this programme the learner will be able to :

Description
Use knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation to deal with defined and applied engineering procedures, processes, systems or methodologies.
Review and select research literature to contribute to the solution of broadly-defined engineering problems reaching substantiated conclusions using analytical tools appropriate to their discipline or area of specialisation.
Identify and commit to professional ethics, responsibilities and norms of chemical and process engineering technology practice.
Demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technology practice.
Contribute to the design of solutions for defined engineering technology problems and contribute to the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
Conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, identify and conduct experiments to provide valid conclusions.
Select and use appropriate techniques, resources, and modern engineering tools to broadly-defined engineering activities, with an understanding of their limitations.
Practice as a professional using 21st century skills
Demonstrate an awareness and understanding of management and business practices, such as risk and change management, and understand their limitations.
Solve practical problems in specific chemical process systems using sound analytical, industrial, laboratory, and time-management skills.
Operate chemical process equipment and interpret their results and readings.
Contribute to the design and development of systems or processes to deliver engineering projects or services factoring in sustainability, cost factors and engineering ethics principles.
Work with relevant engineering software and demonstrate an understanding of their place in an engineering environment.

Semester Schedules

Year 1 / Semester 1

Core	
Course Code	Title
EN6000	Electrical Fundamentals
EN6990	Engineering Practice
EL6001	English for EDICT 3
EN6907	Mathematics for Engineers 1

Year 1 / Semester 2

Core	
Course Code	Title
EN6010	Engineering Computing Fundamentals
EL6002	English for EDICT 4

EN6914	Mathematics for Engineers 2
EN6903	Mechanical Fundamentals

Year 2 / Semester 1

Core	
Course Code	Title
EN6702	Chemical Fundamentals
EN6701	Engineering Chemistry
NR	National Requirements
EN6705	Process Technology Systems
Optional	
Course Code	Title
NR-Arabic	National Requirements- Arabic

Year 2 / Semester 2

Core	
Course Code	Title
ED7000	Applied Project
EN6703	Chemical Process Technology
EN7230	Instrumentation and Automatic Control
EN7704	Material and Energy Balances

Year 3 / Semester 1

Core	
Course Code	Title
EN7917	Fluid Mechanics
EN7700	Mass Transfer Operations - I
EN7919	Thermodynamics

Year 3 / Semester 1 & 2

Elective	

Course Code	Title
EDICTE	EDICT Electives

Year 3 / Semester 2

Core	
Course Code	Title
EN8918	Applied and Process Heat Transfer
EN7701	Mass Transfer Operations - II
EN7353	Organic Chemistry

Year 4 / Semester 1

Core	
Course Code	Title
EN8701	Chemical Engineering Thermodynamics
EN8700	Chemical Reaction Engineering
EN8905	Energy, Environment and Sustainability
EN8923	Engineering Project Management
EN8913	Project Proposal

Year 4 / Semester 2

Core	
Course Code	Title
EN8703	Advanced Process Technology Systems
Optional	
Course Code	Title
EN8914	Co-operative Learning Project
EN8911	Engineering Research Project
Elective	
Course Code	Title
NEDICTE	Non-EDICT Electives