

APPROVED

Associate Degree in Engineering Technology (Mechanical)  
Faculty of EDICT (Engineering,Design and ICT)

Programme Title (Arabic)	ٲسندنلما ءٲنقٲ ٲف كراشملل ءولبلل (ءٲكٲنل كٲلل ٲسندنلما)					
Acronym / Abbreviation *	ADEngTech (Mechanical)					
Nature	Embedded Qualification					
Programme Code	ENT7020	Programme Duration	3 Year/Cycle	Programme Level	Level 7	
Programme Credits	360	Award Category	Associate Degree			
Effective From	2021/2022 Sem 1					
Owner	School of Engineering					
Professional Body						
Professional Body	Recognition Status	Effective From	Interim Date	Professional Bodies	Contact Person	Evidence
Employability Skills	Yes	04/01/2021				
Target Groups *						
High School Graduates						
International Students						
People in Employment						
Unemployed						
Qualification Completion Requirements Criteria	<p>Awarded where candidates have met all of the requirements below:</p> <ul style="list-style-type: none"><li>• Successful completion of, or exemption from, all courses listed in Schedule A below</li><li>• Achieve the Bahrain Polytechnic General Qualification Requirements as found in Policy A/AB/004, Naming and Awarding Qualifications.</li><li>• Completion of courses to accumulate a total of 360 credits from any Bahrain Polytechnic Qualification;</li><li>• Completion of 60 days of work experience.</li></ul>					
	<p>The Associate Degree in Engineering Technology is an exit qualification of the Bachelor in Engineering Technology and it stands at NQF level 7. It is available for the Bachelor of Engineering technology students that have completed the 3rd year of their studies.</p>					

<b>Programme Overview *</b>	<p>The Bachelor of Engineering Technology Programme offered at Bahrain Polytechnic is composed of 3 Qualifications; the Mechanical Major, the Electronics Major and the Electrical Major. Each of these qualifications, also have their own exit qualification which is an Associate Degree in Engineering Technology at NQF level 7.</p> <p>The AssEngTech and the BEngTech Qualifications are designed and delivered in such a way, 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>All Associate degrees are exit qualifications at the 3rd year of the BEngTech studies and consist of 360 credits over a period of 3 years, 6 semesters. All BEngTech Qualifications are 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. For the Associate Degree the students need to complete 360 credits consist of 15 credits of elective courses, 15 credits of national requirements courses, 60 credits of English courses and the remaining credits are taken from core and specialized engineering courses. Additionally, the students are required to complete a total of 60 work placement days. All qualifications 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 Associate Degrees and the BEngTech qualifications 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 us to provide the required theoretical knowledge, practical skills and employability skills to our graduates and thus achieve our 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 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>
<b>Entry and Selection *</b>	<p>This is an exit qualification of the corresponded BEngTech program. If the students are accepted to the BEngTech program, they are eligible to receive the exit qualification (Associate Degree) subject to the successful completion of the first 3 years of the program and 60 days of industrial workplacement.</p>
<b>Selection and Criteria and Process *</b>	<p>N/A</p>
<b>Major Selection Criteria *</b>	<p>N/A</p>
<b>Accreditation / External Approval Requirements *</b>	<p>The Mechanical, Electronics and Electrical Engineering Technology majors have already been submitted for potential IET, UK accreditation, receiving "confidence" at the 1st initial related review. It is expected that the accreditation visit will take place within 2021.</p>
<b>Attendance Requirements *</b>	<p>Attendance requirements are described in the policy Student Attendance A/AB/010.</p>

<p><b>Qualification Overview *</b></p>	<p>The Associate Degree in the Mechanical Engineering technology is a technically strong qualification that aims to provide for the needs industry nationally, regionally and internationally. The qualification has a wide base of Mechanical 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 solid mechanics, thermodynamics, sustainability and control to suit the petrochemical, aluminium and manufacturing industries.</p> <p>Students gain advanced theoretical knowledge and specialist practical skills in the areas of Mechanics (statics and Dynamics), workshop practice, thermodynamics and fluid mechanics, material science, basic manufacturing processes, heat transfer, Computer Aided Design and basic control engineering. Students are introduced to software packages Matlab and LabView and 3 Dimensional modelling software, SolidWorks, is integrated and used extensively throughout the programme.</p>
<p><b>Qualification Aim *</b></p>	<p>The aim of this programme is to provide students with a comprehensive set of skills for employment as engineering technicians. According to the Dublin Accord, the role of the Engineering Technicians involves them in the implementation of proven techniques and procedures to the solution of practical problems. They carry a measure of supervisory and technical responsibility and are competent to exercise creative aptitudes and skills within defined fields of technology, initially under the guidance of engineering practitioners with appropriate experience.</p> <p>Engineering Technicians contribute to the design, development, manufacture, commissioning, operation and maintenance of products, equipment, processes and services. They apply safe systems of work.</p> <p>A course of education which can be recognised as underpinning a planned career as an Engineering Technician is expected to:</p> <ul style="list-style-type: none"> <li>• Provide a foundation for progression and develop a positive attitude towards lifelong learning, from which the Engineering Technician will be able to develop a detailed understanding of the principles and a mastery of the knowledge and analytical skills required for engineering practice.</li> <li>• Motivate students towards the practice of engineering and stimulate their learning. Ensure that science and mathematics are taught within the context of real engineering applications, integrating theory with current industrial practice and design requirements.</li> <li>• Develop awareness of the social, legal, economic and political contexts within which engineers and technicians operate.</li> <li>• Contribute to the personal and professional development of students in the context of the applications of engineering, through the development of 'key skills'.</li> </ul> <p>The qualification will provide students with:</p> <ul style="list-style-type: none"> <li>• theoretical and practical skills to contribute to the solution of engineering problems and the design engineering systems in the broad area of mechanical engineering, Mechanics, Thermodynamics, Fluid Mechanics and Control,</li> <li>• skills necessary for effective communication, analysis, team work, documentation and evaluation of systems through the inclusion of courses in English language, mathematics, project management, ethics and social responsibility.</li> </ul>

This programme prepares students for the following further learning, careers and/or employment opportunities:

- Graduates from the Associate Degree in Engineering Technology (Mechanical) who wish to continue their studies may apply to any university for admission into their programme. For an engineering technology diploma, it is common practice for a university to accept the student into the 2nd year of a BEng or 3rd year of a BEngTech degree.

	Master of Engineering*		
	▲		
	Bachelor of Engineering*		
	▲		
	BEngTech		Associate degree in Engineering Technology

		▲	▲	▲	
		Certificate in Academic Preparation	Direct Entry	Associate Degree in Engineering*	
*Not currently offered by Bahrain Polytechnic					

Other Information *	Empolyability Skills Generic Definition:	
	Communication	Communicate in ways that contribute to productive and harmonious relationships across employees and customers.
	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.

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## Programme Learning Outcomes

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

Description
Apply knowledge of mathematics, science, engineering fundamentals, and an engineering specialisation to deal with defined and applied engineering procedures, processes, systems or methodologies
Identify, formulate, research literature and solve broadly-defined engineering problems reaching substantiated conclusions using analytical tools appropriate to their discipline or area of specialization
Demonstrate commitment to professional ethics, responsibilities and norms of engineering technology practice
Recognize the impact of engineering solutions in a societal context and demonstrate knowledge of the need for sustainable development.
Critically analyze the societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering technology practice.
Contribute to the design of solutions for broadly-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, including prediction and modeling tools, to broadly-defined engineering activities, with an understanding of their limitations
Practice as a professional using 21st century skills
Solve practical problems in specific mechanical engineering settings using sound analytical, industrial, laboratory, and time-management skills
Operate engineering instruments and machines and interpret their results and readings
Analyze mechanical engineering performance and diagnose faults
Work with computers and demonstrate an understanding of their place in an engineering environment
Contribute to the process of design, prototyping, and manufacturing of products

## Semester Schedules

### Year 1 / Semester 1

Core	
Course Code	Title
EN6000	<a href="#">Electrical Fundamentals</a>
EN6990	<a href="#">Engineering Practice</a>
EN6907	<a href="#">Mathematics for Engineers 1</a>
EL5005	<a href="#">Reading and Writing English for EDICT</a>

### Year 1 / Semester 2

Core	
Course Code	Title
EN6010	<a href="#">Engineering Computing Fundamentals</a>
EN6914	<a href="#">Mathematics for Engineers 2</a>

EN6903	<a href="#">Mechanical Fundamentals</a>
EL5006	<a href="#">Speaking and Listening English for EDICT</a>

## Year 2 / Semester 1

Core	
Course Code	Title
EN6904	<a href="#">Engineering Graphics</a>
EN6902	<a href="#">Engineering Mechanics 2</a>
EL6001	<a href="#">English for EDICT 3</a>
EN7917	<a href="#">Fluid Mechanics</a>

## Year 2 / Semester 2

Core	
Course Code	Title
EL6002	<a href="#">English for EDICT 4</a>
EN7908	<a href="#">Manufacturing, Control and Environmental Sustainability</a>
EN6107	<a href="#">Material Science 1</a>
EN7919	<a href="#">Thermodynamics</a>

## Year 3 / Semester 1

Core	
Course Code	Title
EN7923	<a href="#">Mechanical Project 1 (Design and Analysis of Mechanical Components)</a>
EN8923	<a href="#">Engineering Project Management</a>
EN7924	<a href="#">Mechanical Project 2 (Fabrication and Manufacturing)</a>
Elective	
Course Code	Title
ELE1	<a href="#">Electives 1</a>
ELE2	<a href="#">Electives 2</a>

## Year 3 / Semester 2



Core	
Course Code	Title
NR	<a href="#">National Requirements</a>
NR-Arabic	<a href="#">National Requirements- Arabic</a>
EN8924	<a href="#">Quality and Reliability Engineering</a>