APPROVED

Associate degree in Engineering Technology (Electromechanical)

Faculty of EDICT (Engineering,Design and ICT)

Programme Title (Arabic)	الدبلوم المشارك في تقنية الهندسة (الهندسة الكهروميكانيكية)				
Acronym / Abbreviation *	AssDegreeEngTech (Electromechanical)				
Nature	Embedded Qualification				
Programme Code	ENT7050	**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	Awarded where candidates have met all of the requirements below: • Successful completion of, or exemption from, all courses listed in Schedule A. • Successful completion of at least 30 credits from Electives Group. • Succesful competion of all the courses listed in the National requirements group and 5 credits of the National requirements – Arabic group of courses • Achieve the Bahrain Polytechnic General Qualification Requirements as found in Policy A/AB/004, Naming and Awarding Qualifications; • Completion of courses to accumulate a total of 360 credits from any Bahrain Polytechnic Qualification. • Completion of 60 days of work experience.

Programme Overview *	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 3 rd year of their studies. The Bachelor of Engineering Technology Programme offered at Bahrain Polytechnic is composed of five Qualifications; the Mechanical Major, the Electronics Major, the Electrical Major, the electromechanical major and the Communications and networks major Each of these qualifications, also have their own exit qualification which is an Associate Degree in Engineering Technology of 360 credits. The Associate Degree Qualification reflects the needs of the rapid and modern developments in Electromechanical, solid mechanics, thermodynamics, sustainability and Control that are happening nationally, regionally and internationally. It has a significant industrial focus on the petrochemical, aluminum and manufacturing Industries which are widely present in Bahrain. Students gain advanced theoretical knowledge and specialist practical skills in the areas of mechanics (static, structural and dynamic), workshop practice, thermodynamics and fluid mechanics, engineering design, circuits design, digital devices, electrical machines and drives, instrumentation, control systems, power electronics and systems, design and installation of electromechanical systems and the important Engineering software packages MatLab and LabView and 3Dimensional modeling software. The Associate Degree in Engineering Technology (Electromechanical) is designed as an exit qualification for students who are unable to complete the full requirements of the degree, but have achieved core technical skills and knowledge after a minimum of 3 years full-time study.
Entry and Selection *	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 the ENT8050 Bachelor of Engineering Teachnology (Electromechanical) Programme, beyond those described in the Student Admission Policy are as follows: Academic Successful completion of • AP4203 English 2 • AP4102 Mathematics 2 (Technical) or Passing English and Mathematics selection tests at the required level or equivalent. The Associate Degree in Engineering Technology (Electromechanical) is an exit qualification of the corresponded Bachelor program and the students gain entry via the BEngTech above requirements.
Selection and Criteria and Process *	N/A (exit qualification of the BEngTech program)
Major Selection Criteria *	N/A (exit qualification of the BEngTech program)

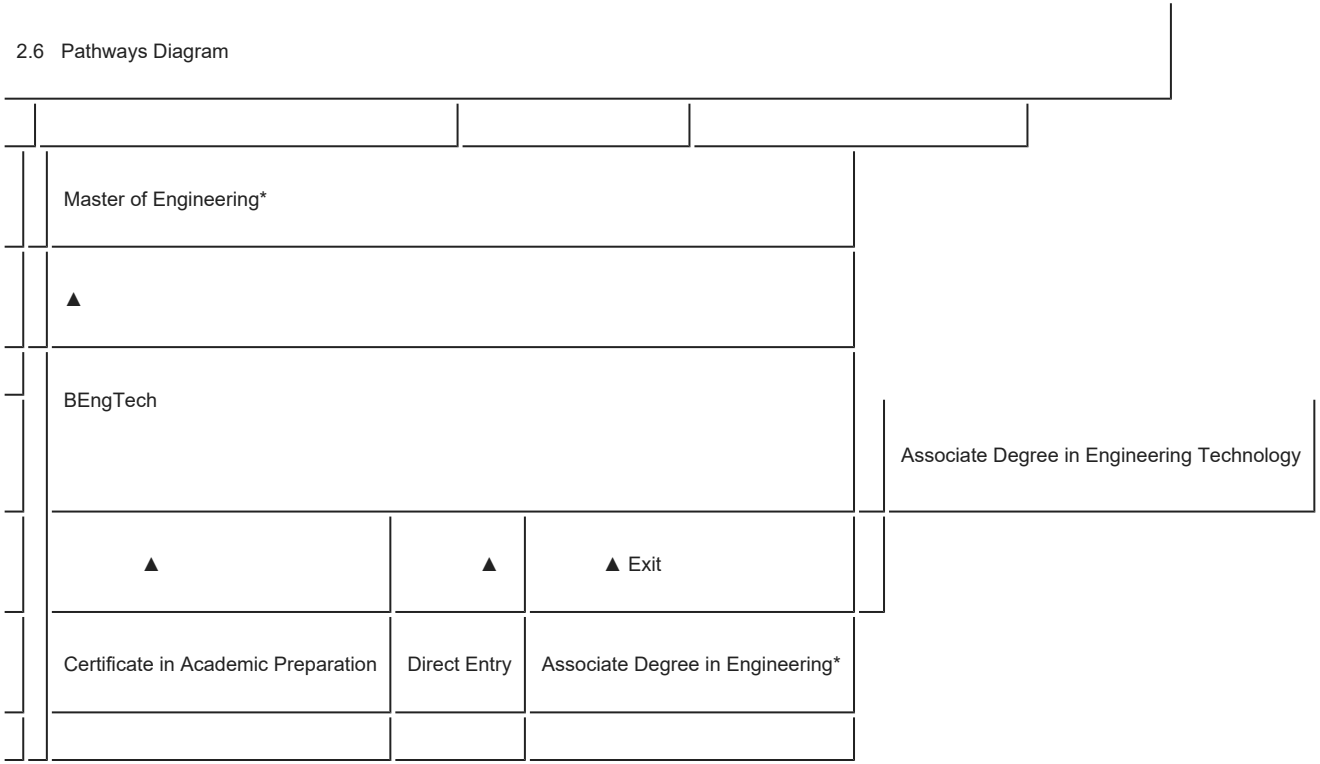
Accreditation / External Approval Requirements *	The mechanical, electronics and electrical engineering technology majors have been submitted for potential IET, UK accreditation, receiving “confidence” at the 1 st initial related review. It is expected that the accreditation visit will take place within 2021. The new electromechanical and communications and networks engineering technology majors will be submitted for similar international accreditation during 2022 or after the first completion of all offered courses subject to the accreditation body’s requirement and review.
Attendance Requirements *	Attendance requirements are described in the policy Student Attendance A/AB/010.
Qualification Overview *	The Associate degree in the Electromechanical Engineering technology qualification is an exit qualification of the corresponded BEngTech. It is a technically strong qualification that aims to provide for the needs industry nationally, regionally and internationally for engineering technicians. The qualification has a combination of electrical, mechanical and electronics 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 and electrical machines to suit the petrochemical, aluminum and manufacturing industries. Students gain advanced theoretical knowledge and specialist practical skills in the areas of Mechanics (static, structural and Dynamic), workshop practice, thermodynamics and fluid mechanics, engineering design, digital devices, electrical machines, instrumentation and systems, design and installation of electromechanical systems. Students are introduced to software packages Matlab and LabView and 3Dimensional modelling software, SolidWorks, is integrated and used extensively throughout the programme.
Qualification Aim *	The aim of this qualification is to provide students with a comprehensive set of skills for employment as engineering technologists (an engineering technologist is defined by the Sydney Accord as being competent at analysing, solving, managing and taking responsibility for broadly-defined engineering problems and activities). The qualification will provide students with: • theoretical and practical skills to solve engineering problems and design engineering systems in the broad area of electrical and mechanical engineering, Mechanics, Thermodynamics, Fluid Mechanics, Control engineering systems, Power Systems, Electrical Machines and drives and Electromechanical Design of installation systems for the industry and Building Services 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.
	This exit qualification equips graduates to start their engineering career mostly as an engineering technician. This programme prepares students for the following further learning, careers and/or employment opportunities: • Industrial process technician • Building services • Iindustrial automation operations • Electrical Machines operation and maitenance • Medical devices operation • Construction

Graduate Pathways and Destination *

- Mechanical and electrical manufacturing technician
- Computer-aided design (CAD)

Graduates from the Associate Degree in Engineering Technology programme who wish to continue their studies may apply to any university for admission into their Bachelor engineering programme.

2.6 Pathways Diagram



*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.

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 specialisation.
Demonstrate commitment to professional ethics, responsibilities and norms of engineering technology practice.
Recongize 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.
Design 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 cons
Conduct investigations of broadly-defined problems; locate, search and select relevant data from codes, data bases and literature, design and conduct experiments to provide valid conclusions.
Select and apply 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
Demonstrate knowledge of management and business practices, such as risk and change management, and recognize their limitations.
Solve practical problems in specific engineering systems using electro-mechanical components and sound analytical, industrial, laboratory, and time-management skills.
Operate engineering instruments and machines and interpret their results and readings.
Analyze engineering systems performance based on constrains and diagnose faults
Work with computers and demonstrate an understanding of their place in an engineering environment
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.

Semester Schedules

Year 1 / Semester 1

Core

Course Code	Title
EN6000	**Electrical Fundamentals**
EN6990	**Engineering Practice**
EN6907	**Mathematics for Engineers 1**
EL5005	**Reading and Writing English for EDICT**

Year 1 / Semester 2

Core

Course Code	Title
EN6010	**Engineering Computing Fundamentals**

EN6914	Mathematics for Engineers 2
EN6903	Mechanical Fundamentals
EL5006	Speaking and Listening English for EDICT

Year 2 / Semester 1

Core	
Course Code	**Title**
EN6080	Alternating Current (AC) Circuit theory
EN6904	Engineering Graphics
EL6001	English for EDICT 3
EN7917	Fluid Mechanics

Year 2 / Semester 2

Core	
Course Code	**Title**
EN6020	Digital Devices and Systems
EL6002	English for EDICT 4
EN7230	Instrumentation and Automatic Control
EN7919	Thermodynamics

Year 3 / Semester 1

Core	
Course Code	**Title**
EN7032	Electrical Machines
EN6902	Engineering Mechanics 2
EN7008	Power Electronics

Elective	
Course Code	**Title**
ELE1	Electives 1

Year 3 / Semester 2

Core	
Course Code	**Title**
EN8033	**Electrical Drives**

NR	**National Requirements**

EN8154	**Structural mechanics and dynamics**

Optional	
Course Code	**Title**
NR-Arabic	**National Requirements- Arabic**

Elective	
Course Code	**Title**
ELE1	**Electives 1**