

APPROVED

Master of Science in Artificial Intelligence
Faculty of EDICT (Engineering,Design and ICT)

Programme Title (Arabic)	يعان طصلإا ءالفذلإا يف مول علإا ري يتسجام					
Acronym / Abbreviation *	MScAI					
Nature	Specialisation					
Programme Code	ICT9010	Programme Duration	1 Year/Cycle	Programme Level	Level 9	
Programme Credits	180	Award Category	Masters			
Effective From	2022/2023 Sem 2					
Owner	School of ICT					
Professional Body						
Professional Body	Recognition Status	Effective From	Interim Date	Professional Bodies	Contact Person	Evidence
Employability Skills	Yes	07/05/2023		Employability Skills		
Target Groups *						
International Students						
People in Employment						
Targeted Industry Groups						
Other						
Qualification Completion Requirements Criteria	Awarded where candidates have met all of the requirements below:					
	<ul style="list-style-type: none">Successful completion of, or exemption from, all courses listed in Schedule A					
	and					
	<ul style="list-style-type: none">Accumulation of at least 30 credits from courses in Schedule B					
	and					
	<ul style="list-style-type: none">Achieve the Bahrain Polytechnic General Qualification Requirements as documented in the naming and Awarding Qualifications policy					
	and					
	<ul style="list-style-type: none">Completion of courses to accumulate a minimum of 180 credits					

Programme Overview *	<p>Bahrain Polytechnic was established by the Bahrain Government to address the need for a skilled Bahraini workforce to support economic growth and development. To support the development of the workforce Bahrain Polytechnic aims to produce graduates in applied, professional qualifications. It is widely acknowledged that Information Technology is a key sector and enabler for growth in any modern economy.</p> <p>The MSc in AI programme aims to develop rounded graduates who have not only the requisite skills demanded of the 21st century workplace but also skills in key areas of AI technology required in today's society and labor market. Given the rapidly changing nature of the AI industry, the programme's currency is to be maintained through the upskilling of academic staff, introduction of new optional courses and the solicitation of requirements from key industry and government stakeholders.</p> <p>This degree introduces fundamental artificial intelligence technical skills and specialize the learners' in-depth understanding, knowledge, and skills in quantitative analysis, data processing, and visualization, machine learning, and its applications, and big data, and to extend their abilities to apply their competence in practical projects on contextualized scenarios based on their individual career plans. Core theories form the cornerstone of the programme, with hands-on, applied skills being developed through the Problem-Based Learning (PBL) philosophy. Project work forms another cornerstone of the programme, with an emphasis on projects in most of the courses followed by a final project in the third semester.</p>
Entry and Selection *	<p>Following are the minimum requirements for admission into MSc in AI:</p> <ul style="list-style-type: none"> • Recognized bachelor's degree or its equivalent in a related field. • Minimum GPA:: 2.5 out of 4.00 • English entry requirements: <ul style="list-style-type: none"> - IELTS score of 6.5 or evidence of a bachelor's degree with English as the only language of instruction - Or, passing English selection tests / interviews in reading, writing, speaking and listening at the required level or equivalent • Applicants with a first degree from disciplines not related to engineering or sciences can be interviewed by a relevant Programme Committee.
	Where there are more applicants who meet the programme entry criteria than can be accepted, the following shall be used:

Selection and Criteria and Process *	<p>Selection Criteria</p> <ul style="list-style-type: none"> - First selection to students who have a form of approved scholarship for the programme. - Prior educational achievement. <p>Selection Process</p> <ul style="list-style-type: none"> - The School will determine on a yearly basis the seats available for each of the entry and selection categories. - Additionally, applicants may be required to attend an interview.
Major Selection Criteria *	<p>N/A as there is no major selection.</p>
Accreditation / External Approval Requirements *	<p>None at the moment, but it will be brought for accreditation by BCS - The Chartered Institute for IT in 2028 (next visit to Bahrain Polytechnic) and it will be also submitted for listing in BQA.</p>
Attendance Requirements *	<p>Institutional attendance requirements are described in Student Attendance Policy A/AB/006. There are no programme specific attendance requirements.</p>
	<p>The Master of Science in Artificial Intelligence (AI) is a Postgraduate Degree offered to students who are interested in furthering their education in the field of data-driven artificial intelligence science, by learning and applying processes and methods in knowledge representation, machine learning, data collection, and interpretation using interdisciplinary scientific methods from statistics, programming, and specific application domains, to support automation, smart applications, and informed business decision making. The qualification is a</p>

Qualification Overview *	<p>pathway for computer science and ICT graduates, engineering and applied sciences graduates as well as tech-savvy graduates from other domains to specialise in the area of AI and determine ways that they can apply the knowledge to different domains based on their background and interests. Graduates of this qualification may also progress to further studies in the area of AI at the PhD level.</p>
Qualification Aim *	<p>This degree is designed to introduce fundamental artificial intelligence technical skills and specialize the learners' in-depth understanding, knowledge, and skills in quantitative analysis, data processing, and visualization, machine learning and its applications, and big data, and to extend their abilities to apply their competence in practical projects on contextualized scenarios based on their individual career plans.</p>
Graduate Pathways and Destination *	<p>Learners who successfully complete the qualification may progress to further studies at PhD level.</p> <p>Below are the roles that graduates of the qualification may undertake if they choose to enter the industry/workforce:</p> <ul style="list-style-type: none"> • Data Scientist / Senior Data Scientist • Data Analyst/ Senior Data Analyst • Data Engineer / Senior Data Engineer • Text Analyst • Natural Language Processing Engineer • AI Developer/Engineer/Specialist • Image Processing Engineer • Machine Learning Engineer • Cloud-based AI platforms Developer • Data Mining Consultant • AI-based Decision-Making Analyst • Statistical Data Scientist • Data Visualization and report writer • Machine Learning Research Scientist • Machine Learning Engineer • Machine Learning Specialist / Consultant • Machine Learning Operations (MLOps) Engineer • Senior Software Development Specialist

Other Information *	Employability 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 probability, statistics, and linear algebra to modern AI scenarios.
Use a broad range of informatics and statistics to perform data cleaning, collection, visualization, analysis, and communication for business decision-making.
Demonstrate knowledge of a variety of machine learning algorithms for decision making in various domains.
Utilize Statistical Programming Languages and Big Data tools in scenarios that require processing of large data.
Conduct research using artificial intelligence in one of many application domains.
Recognise the professional, moral, and ethical issues involved in exploiting computer technology and be guided by appropriate professional, ethical and legal practices in a Bahrain context.
Practice as a AI professional using 21st Century Skills.

Semester Schedules

Year 1 / Semester 1

Core	
Course Code	Title
IT9102	Advanced Artificial Intelligence
IT9103	Data Visualization
IT9101	Mathematical Foundations and Quantitative Analysis
Optional	
Course Code	Title
IT9002	Natural Language Processing

Year 1 / Semester 2

Core	
Course Code	Title
IT9203	Big Data Tools and Techniques
IT9202	Deep Learning
IT9201	Machine Learning and Data Mining
Optional	
Course Code	Title
IT9003	Computer Vision

Year 1 / Semester 3

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Core	
Course Code	Title
IT9099	Thesis