

PROGRAMME SPECIFICATION

Program Name اسم البرنامج	بكالوريوس العلوم في الذكاء الاصطناعي والأنظمة الذكية Bachelor of Science in Artificial Intelligence and Smart Systems
Program Code رمز البرنامج	
Major CIP	11
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Date of publication تاريخ الإصدار	May 2026
Initial Accreditation Date تاريخ الاعتماد الأولي للبرنامج	
Last Renewal of Accreditation Date تاريخ تجديد اعتماد البرنامج	
Next reaccreditation due date تاريخ استحقاق إعادة الاعتماد التالي	
Last update آخر تحديث	

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Introduction:

The Bachelor of Science in Artificial Intelligence and Smart Systems program at Umm Al Quwain University (UAQU) is designed to prepare highly qualified graduates equipped with advanced knowledge and practical skills in artificial intelligence (AI), intelligent technologies, and smart system development. The program responds to the rapid global transformation driven by AI and digital innovation and aligns with the UAE's strategic vision for smart transformation, innovation, and knowledge-based economic growth.

UAQU aspires to be one of the reputable institutions of higher education in the UAE and is regionally known for excellence and innovation in teaching and learning, research, and community engagement. UAQU will achieve this by effectively engaging with the community's needs and adopting the best international practices and innovation in teaching, research, and scholarship. The Artificial Intelligence and Smart Systems program at UAQU reflects the institution's commitment to academic excellence, innovation, and community engagement, contributing to the development of future-ready professionals in the field of intelligent systems.

The Bachelor of Science in Artificial Intelligence and Smart Systems program at UAQU aims to equip students with the knowledge, skills, and technical expertise required to design, develop, and engage with Artificial Intelligence solutions and integrate them within intelligent systems that can perceive, learn, and act in the real world. The curriculum combines core principles of computer science with advanced topics in machine learning, deep learning, computer vision, natural language processing, robotics, and Internet of Things (IoT). Through this multidisciplinary approach, the program prepares graduates to contribute effectively to the rapidly evolving AI-driven economy and to lead innovation across diverse industrial and research domains.

The goal of this program is to prepare graduates capable of building reliable, scalable, and secure AI-driven systems based on proven methodologies and innovative practices. The program emphasizes practical learning through laboratories, projects, internships, and a graduation project to ensure that students are well prepared to meet industry demands and contribute effectively to the advancement of smart technologies in the UAE and beyond.

Teaching and Learning Methodologies:

The Artificial Intelligence and Smart Systems program faculty members, through the College and Program Committees, ensure that instructors cover the course material on time as specified in the course syllabus, which contains a full description of the learning outcomes and course objectives. The syllabus also includes a week-by-week study schedule, assessment methods to be used, IT tools utilized (where applicable), online resources (web resources, Moodle, reference links, among others), and university policies regarding attendance, academic integrity, cheating, and plagiarism.

Teaching and learning methodologies in the Bachelor of Science in Artificial Intelligence and Smart Systems program emphasize a balanced integration of theoretical foundations and practical applications. Instruction includes traditional lectures to introduce core concepts such as machine learning, deep learning, computer vision, natural language processing, robotics, data analytics, and smart systems architecture. To ensure students develop hands-on technical competence, the program incorporates laboratory sessions, programming assignments, system design projects, and simulation-based exercises where students implement and test intelligent solutions using modern tools and platforms.

Project-based learning and problem-based learning approaches are widely used to strengthen analytical thinking, creativity, and solution-oriented skills. Students engage in collaborative team projects that simulate real-world AI development environments, fostering teamwork and multidisciplinary integration. The program also integrates online learning platforms, cloud-based tools, coding environments, and virtual laboratories to support flexible and technology-enhanced learning experiences.

Internships and industry-linked projects further enhance experiential learning by exposing students to practical challenges in AI deployment, smart systems integration, and emerging technologies. The graduation project (capstone) serves as a culminating experience, enabling students to design, implement, and evaluate a comprehensive AI-driven system under faculty supervision.

Faculty members teaching in the program specialize in their respective fields and represent a range of academic ranks and scholarly experience. Teaching assistants (when required) support laboratory and practical components of courses to ensure effective learning outcomes.

Students are required to register a minimum of 12 credit hours (typically 4 courses) per semester and may register up to a maximum of 18 credit hours (6 courses), in accordance with university regulations.

Student assessment includes coursework such as term tests and final examinations, individual and group projects, programming assignments, case studies, research reports, quizzes, presentations, and class participation (where applicable). Assessment strategies are aligned with course learning outcomes to ensure fairness, transparency, and academic rigor.

Attendance is compulsory and governed by the University Attendance Policy as published in the official policies and procedures manual.

Student Support Services

The Student Support Services (SSS) is a team comprises of an SSS Head and staff members. The staff members report to the SSS Head. SSS is the central point for information and advice for all students. The SSS provides a wide range of services and will assist students with the following:

- Registration
- Immigration
- Information
- Examinations
- Certificates
- ID Cards
- Academic Counselling
- Personal Counselling
- Complaints & Suggestions
- Students Clubs & Organization
- Personal Development Planning (PDP)
- Transcript
- Fee Payment

- Application to Full-Time Program

UAQU seeks to achieve its mission, as the student is the main pillar upon which the philosophy of UAQU is based and is the focus of the educational process. The implementation of the extra-curricular activities, where SSS are carried out in cooperation with the colleges and academic programs, is mainly to achieve excellence for the student.

On the other hand, UAQU has a scholarship system that will be applied accordingly to students expected to join the Artificial Intelligence and Smart Systems program, as UAQU firmly believes that supporting distinguished students is an important key to develop their distinction and encouraging them to excel.

General Admission Requirements:

Every applicant is required to submit the following documents:

- Completion of UAE's High Secondary School Certificate, or its equivalent, with a minimum score of 75%.
- Proof of English language proficiency through one of the following certificates:
 - IELTS: minimum score of 5
 - TOEFL ITP: minimum score of 500
 - TOEFL iBT: minimum score of 61
 - TOEFL CBT: minimum score of 173
 - Linguaskill: minimum level B2
 - Any other English proficiency test approved by the Commission for Academic Accreditation (CAA).
- Proof of mathematics proficiency through the SAT, with a minimum score of 450.
- Passing a personal/skills interview set by the committee.
- Any other requirements requested by the University in accordance with UAQU policies and procedures.

Exemption from English Language Proficiency Requirement:

Students applying to the program may be exempted from the English proficiency requirement in the following cases:

- Passing the Umm Al Quwain University English placement test with a minimum score of 80.
- Or obtaining a score of 80 or higher in English in the secondary school certificate.
- Or achieving an overall secondary school average of 80 or above.
- Or exemption for students who studied non-Ministry of Education curricula, provided that the curriculum is delivered in English.

Exemption from Mathematics Proficiency Requirement:

Students applying to the program may be exempted from the mathematics proficiency requirement in the following cases:

- Passing the Umm Al Quwain University mathematics placement test with a minimum score of 75.
- Or obtaining a score of 80 or higher in mathematics in the secondary school certificate.
- Or achieving an overall secondary school average of 80 or above.

Program Educational Objectives:

The program educational objectives (goals) for the Bachelor of Science in Artificial Intelligence and Smart Systems program describe accomplishments that graduates are expected to attain a few years after graduation.

- **PEO1:** Equip graduates with a strong foundation in artificial intelligence principles, computer science, and related disciplines, enabling them to analyze, design, and implement intelligent solutions for complex real-world problems.
- **PEO2:** Develop graduates' proficiency in applying machine learning and deep learning algorithms across diverse domains to build data-driven, adaptive, and intelligent systems.
- **PEO3:** Foster the ability to integrate AI with emerging smart technologies such as robotics, Internet of Things (IoT), and automation to create intelligent and interconnected systems.
- **PEO4:** Prepare graduates to uphold professional, legal, and ethical standards in the practice of artificial intelligence, ensuring responsible and sustainable AI innovation.
- **PEO5:** Cultivate lifelong learning and teamwork skills that enable graduates to adapt to technological advancements and contribute effectively to the AI-driven global economy.

Program Learning Outcomes

The student outcomes of the Bachelor of Science in Artificial Intelligence and Smart Systems program map directly onto the ABET AI and similarly named computing programs Criterion (1) - (5).

Upon successful completion of this program, students will be able to:

PLO1: (K1) Demonstrate comprehensive knowledge and understanding of theories and methodologies of Artificial Intelligence and smart systems.

PLO2: (K2) Describe the architecture and components of smart systems, including robotics, IoT devices, and embedded intelligent technologies.

PLO3: (S1) Design, develop, and evaluate AI-based applications to address real-world challenges in various domains.

PLO4: (S2) Integrate AI models with smart systems to create adaptive, connected, and autonomous solutions.

PLO5: (R1) Adhere to ethical, legal, and societal standards in the development and deployment of AI and smart systems.

PLO6: (R2) Demonstrate effective problem-solving, teamwork, and project management skills in multidisciplinary environments.

Assessment Strategy:

For each course a student takes, a thorough and consistent assessment is conducted throughout the semester. The means of evaluation of examinations, quizzes, reports and discussions, are designed to enable students to demonstrate their achievement of the courses' learning outcomes and assess students' attainment of knowledge and progress in the respective courses. Final examinations serve to sum up the overall performance of the student in the entire semester without being excessively emphasized.

University Marking Scheme:

The cumulative grade point average (CGPA) is based on a four-point scale. The following grading system is used at the University:

Grade	Percentage Score	Points	Description
A	95-100	4.00	Excellent
A-	90-94	3.7	
B+	87-89	3.3	Very good
B	84-86	3.0	
B-	80-83	2.7	Good
C+	77-79	2.3	
C	74-76	2.0	Satisfactory
C-	70-73	1.7	
D	60-69	1.00	Poor
F	<60	0.0	Fail

Program Structure

Bachelor of Science in Artificial Intelligence and Smart Systems

Program outline document:

Overview:

Course Type	No. of Courses	Credit Hours
General Education	9	27
Mathematics & Statistics Requirements	6	18
Major Requirements	20	60
Major Electives	2	6
Internships	1	6
Senior Graduation Project	1	3
Total	40	120

General Education

No.	Course Code	Course Title	Prerequisite(s)	Cr.H
1	ENG 103	English I	-	3
2	ENG 104	English II	ENG 103	3
3	CIT 100	Computer Concepts and Applications	-	3
4	MTH 100	College Algebra	-	3
5	GED 101	Islamic Culture	-	3
6	GED 112	Contemporary Emirati Studies	-	3
7	IES 111	Innovation, Entrepreneurship, and Sustainability	-	3
8	IES 112	Introduction to Environmental Sustainability	-	3
Total				24

General Electives

No.	Course Code	Course Title	Prerequisite(s)	Cr.H
1	GED 130	Introduction to GIS	-	3
2	GED 140	Conceptual Physics	-	3
3	GED 150	Critical Thinking	-	3
4	GED 160	Psychology in Everyday Life	-	3
5	GED 162	Corporate Social Responsibility	-	3
6	GED 180	Human Behavior and Socialization	-	3
Total (select ONLY one course)				3

Mathematics & Statistics Requirements

No.	Course Code	Course Title	Prerequisite(s)	Cr.H
1	MAT 110	Calculus	MTH 100	3
2	MAT 130	Linear Algebra	MTH 100	3
3	MAT 140	Probability and Statistics	-	3
4	MAT 150	Numerical Analysis	MAT 110	3
5	MAT 160	Discrete Mathematics	MTH 100	3
6	MAT 170	Optimization Techniques	MAT 140	3
Total				18

Major Requirements

No.	Course Code	Course Title	Prerequisite(s)	Cr.H
1	AIS 120	Foundations of Data Science	-	3
2	AIS 140	Programming with Python	CIT 100	3
3	AIS 210	Object-Oriented Programming	AIS 140	3
4	AIS 220	Machine Learning	AIS 140, AIS 250	3
5	AIS 230	Knowledge Representation	-	3
6	AIS 240	Data Structures and Algorithms	AIS 140	3
7	AIS 250	Introduction to Artificial Intelligence	AIS 140	3
8	AIS 260	Fundamentals of Data & Network Communication	CIT 100	3

No.	Course Code	Course Title	Prerequisite(s)	Cr.H
9	AIS 270	Digital Systems	-	3
10	AIS 310	Deep Learning	AIS 220	3
11	AIS 320	Reinforcement Learning	AIS 220	3
12	AIS 322	Natural Language Processing	AIS 250	3
13	AIS 330	Computer Vision	AIS 140	3
14	AIS 340	IoT and Robotics	AIS 270	3
15	AIS 350	Database Systems	AIS 240	3
16	AIS 360	AI Systems Design and Deployment	AIS 220	3
17	AIS 370	Cybersecurity Principles	CIT 100	3
18	AIS 371	Human-Robot Interaction	AIS 140	3
19	AIS 380	Artificial Intelligence Safety and Security	AIS 370	3
20	AIS 420	Project Management	80 cr. Hrs	3
Total				60

Major Electives

No.	Course Code	Course Title	Prerequisite(s)	Cr.H
1	AIS 460	Advanced NLP	AIS 322	3
2	AIS 461	Advanced Computer Vision	AIS 330	3
3	AIS 462	Cloud Computing	AIS 260	3
4	AIS 463	Multi-Agent Systems	AIS 360	3
5	AIS 464	AI for Smart Cities	AIS 340	3
6	AIS 465	Medical Signal and Image Processing	MAT 150	3
7	AIS 466	3D Vision and Augmented Reality	AIS 330	3
Total (select ONLY two courses)				6

Internships

No.	Course Code	Course Title	Prerequisite(s)	Cr.H
1	AIS 410	Internship	90 cr. Hrs	6
Total				6

Graduation Project

No.	Course Code	Course Title	Prerequisite(s)	Cr.H
1	AIS 440	Senior Graduation Project	AIS 410	3
Total				3

Alignment of Program Learning Outcomes with Program Objectives:

Program Educational Objectives (PEOs)	Aligned Program Learning Outcomes (Bloom's Taxonomy Level)
PEO1: Equip graduates with a strong foundation in artificial intelligence principles, computer science, and related disciplines, enabling them to analyze, design, and implement intelligent solutions for complex real-world problems.	(K1) Demonstrate comprehensive knowledge and understanding of theories and methodologies of artificial intelligence and smart systems. (K2) Describe the architecture and components of smart systems, including robotics, IoT devices, and embedded intelligent technologies. (S1) Design, develop, and evaluate AI-based applications to address real-world challenges in various domains. (S2) Integrate AI models with smart systems to create adaptive, connected, and autonomous solutions.
PEO2: Develop graduates' proficiency in applying machine learning and deep learning algorithms across diverse domains to build data-driven, adaptive, and intelligent systems.	(K1) Demonstrate comprehensive knowledge and understanding of theories and methodologies of artificial intelligence and smart systems. (S1) Design, develop, and evaluate AI-based applications to address real-world challenges in various domains. (S2) Integrate AI models with smart systems to create adaptive, connected, and autonomous solutions.
PEO3: Foster the ability to integrate AI with emerging smart technologies such as robotics, Internet of Things (IoT), and automation to create intelligent and interconnected systems.	(K2) Describe the architecture and components of smart systems, including robotics, IoT devices, and embedded intelligent technologies. (S1) Design, develop, and evaluate AI-based applications to address real-world challenges in various domains. (S2) Integrate AI models with smart systems to create adaptive, connected, and autonomous solutions.
PEO4: Prepare graduates to uphold professional, legal, and ethical standards in the practice of artificial intelligence, ensuring responsible and sustainable AI innovation.	(R1) Adhere to ethical, legal, and societal standards in the development and deployment of AI and smart systems.
PEO5: Cultivate lifelong learning and teamwork skills that enable graduates to adapt to technological advancements and contribute effectively to the AI-driven global economy.	(R2) Demonstrate effective problem-solving, teamwork, and project management skills in multidisciplinary environments.

Alignment of Program Learning Outcomes with QFEmirates

The following tables demonstrate the alignment between the Program Learning Outcomes (PLOs) of the BS in Artificial Intelligence and Smart Systems and the QFEmirates Level 6 descriptors across Knowledge, Skills, and Responsibility, and indicate representative supporting courses.

Program Learning Outcomes (PLOs)	QFEmirates Level (6) Descriptor Alignment
PLO1: Demonstrate comprehensive knowledge and understanding of theories and methodologies of artificial intelligence and smart systems.	Knowledge: Demonstrates advanced theoretical knowledge and a broad understanding of AI and smart systems concepts, principles, and methods of inquiry, enabling critical analysis and the application of appropriate problem-solving techniques.
PLO2: Describe the architecture and components of smart systems, including robotics, IoT devices, and embedded intelligent technologies.	Knowledge: Exhibits critical understanding of system architectures, concepts, and procedures relevant to smart systems, supporting analytical reasoning and informed evaluation of intelligent technologies.
PLO3: Design, develop, and evaluate AI-based applications to address real-world challenges in various domains.	Skills: Applies advanced cognitive, procedural, and technical skills to perform evidence-based critical analysis, construct AI solutions, and evaluate system performance in both anticipated and novel contexts.
PLO4: Integrate AI models with smart systems to create adaptive, connected, and autonomous solutions.	Skills: Utilizes advanced technical and analytical skills to integrate AI with smart technologies, solve specialized problems, and contribute to innovative and applied inquiry.
PLO5: Adhere to ethical, legal, and societal standards in the development and deployment of AI and smart systems.	Responsibility: Demonstrates ethical behavior and accountability in professional practice, assumes responsibility for decision-making in complex or unpredictable contexts, and promotes responsible citizenship and sustainable AI innovation.
PLO6: Demonstrate effective problem-solving, teamwork, and project management skills in multidisciplinary environments.	Responsibility: Manages complex technical or professional activities, collaborates effectively within multidisciplinary teams, supports leadership and lifelong learning, and contributes to professional development.

Program Infrastructure for Bachelor of Science in Artificial Intelligence and Smart Systems:

1. General Computer Labs

- **Equipped with:**
 - High-performance desktops with GPU-enabled workstations.
 - Standard software for programming (Python, Java, C++), database management systems, and simulation tools.
 - Cloud-based development environments.
- **Courses Supported:**
 - Programming with Python
 - Data Structures & Algorithms
 - Databases
 - Software Engineering
 - Computer Networks

2. Deep Learning & AI Lab

- **Equipped with:**
 - High-performance servers with multi-GPU support.
 - AI frameworks (TensorFlow, PyTorch, Keras).
 - Visualization and annotation tools.
- **Courses Supported:**
 - Machine Learning
 - Deep Learning
 - Natural Language Processing
 - Computer Vision

3. IoT Lab

- **Equipped with:**
 - IoT kits (Raspberry Pi, Arduino, ESP8266, ESP32).
 - IoT sensors.
 - Wireless communication devices (ZigBee, LoRa, BLE, Wi-Fi modules).
- **Courses Supported:**
 - Internet of Things (IoT)
 - Smart Systems Design
 - Cybersecurity and AI

4. Robotics Lab

- **Equipped with:**
 - Mobile robots.
 - Robotic arms for automation.
 - Drone kits for aerial robotics.
 - ROS (Robot Operating System) and simulation tools (Gazebo, Webots).
- **Courses Supported:**
 - Robotics and Smart Systems
 - Autonomous Vehicles
 - Reinforcement Learning (robotic applications)

5. 3D Printing & Prototyping Lab

- **Equipped with:**
 - 3D printers.
 - Laser cutters and CNC tools (optional).

- CAD software (SolidWorks, AutoCAD, Fusion 360).
- **Courses Supported:**
 - Robotics and Smart Systems
 - IoT projects requiring custom casings/enclosures
 - Capstone Projects

6. Integration with Capstone & Industry

- **Capstone Projects:** Students will utilize multiple labs (e.g., design a smart robot with IoT sensors, trained in the Deep Learning Lab, prototyped using 3D printing).
- **Industry Collaboration:** Each lab will support joint projects with industry partners for internships and applied research.

Facilities

The University aims to create an environment in which education of the highest quality can be undertaken. This includes:

- appropriate physical facilities (e.g. laboratories, libraries, archives, offices, equipment, IT systems) and professional support for teaching activities.
- An intellectual environment conducive to unfettered enquiry which allows interactions among students.
- The library provides resources and services to its faculty, students, staff, and the community through a central facility located on the University campus. The Library is open every weekday. Working hours are Monday-Friday from 8:00 a.m. to 06:00 pm. The library extends its services until late in the evening on special days to serve evening classes (if any).
- The library's collections comprise all types of recorded information, including print materials in all formats, audio-visual materials, sound recordings, materials used with computer graphics, and three-dimensional materials.

Teaching and Program Quality Enhancement

The College undertakes continuous, integrated, and institution-wide research-based planning and evaluation processes. These processes encompass systematic program reviews that drive ongoing enhancements and substantiate the program's effective fulfillment of its mission. Comprehensive documentation of data collected through consistent and rigorous assessment informs decision-making and provides concrete evidence of the College's unwavering commitment to continuous improvement.

The College prioritizes data collection, analysis, and reporting on program outcomes. It gathers data from students, alumni, and faculty members to evaluate program performance and guide planning aligned with the College's strategic objectives. The sources of data collected include:

- **Student Feedback on the Course and Instructor:**
Students' Feedback on the course and instructor, which is conducted at the end of each semester, provides feedback on course instructions, course delivery, assessment methods, relevance of topics, usage of learning resources, feedback on quality of teaching, approach to students, response to student's queries and related teaching learning aspects. The analysis results and recommendations of the students' feedback are sent to the faculty for their comments, action plan and improvement of the accepted recommendations.

- **Course File Report:**

Course file report is prepared by the instructor on completion of the course. The report provides a comprehensive instructor review of the implementation of the course, achievement level of CLOs, the challenges faced by the instructor and corrective actions required for implementation from the coming semester in addition to the follow up process to ensure the implementation of the action plan.

- **Faculty Performance Evaluation:**

Faculty performance evaluation, a comprehensive self-evaluation of faculty performance shall be submitted at the end of the academic year. Faculty performance for the year is evaluated on teaching, research and publications, involvement in college development, community services and student advising services. Self –evaluation provides faculty with an understanding about his/her performance during the year and improvement needed during the next academic year. This helps the faculty to identify the areas of improvement. Continuous self-evaluation supports maintain quality in teaching-learning process, other academic and extracurricular activities.

- **Advisory Board:**

The aim of establishing the advisory board is to review the various curricula and extracurricular activities to support the objectives of the program, including the educational curriculum and the student's research activities.

The advisory board aims to enhance and maintain the competitive advantage of Umm Al Quwain University in academic activities. This advisory board includes a selection of specialists from related organizations in society as well as academic specialists, related to the specialization to enhance the efficiency and effectiveness of all academic activities in the program. The main tasks will be as follows:

- Assessing, evaluating and planning all existing academic activities.
- Developing recommendations aimed at continuous improvement and quality.
- Ensure that the program learning outcomes are in accordance with the requirements of the labor market from this program.

Quality Assurance Indicators

The college aims to engage in a systematic and broad-based planning and assessment process which demonstrates that the program is effectively accomplishing its mission. The goal of continuous improvement is to meet the highest standards of quality and excellence of the program for higher levels of student learning.

The college identifies the expected outcomes of its educational program and provides evidence of improvement based on analysis of those results. To ensure quality enhancement, the college uses a variety of assessment methods and demonstrates the use of results for the improvement of the academic program.

Based on the student feedback, faculty evaluation, course review reports and teaching reports, the areas of improvement in teaching effectiveness can be identified and reported to respective faculty members. Measures are taken for the proper implementation of recommendations from the feedback. This process is approved and implemented at the college level as part of the improvement to the quality of academic programs, which is monitored by the QA department and Head of department.

To improve the quality of the teaching effectiveness program, the college implements the following actions:

- **Learning Management Systems**

Through the Implementation of eLearning Management Systems (LMS), effective control and coordination could be created for class management for all subjects offered at the college. In addition, the college implements Plagiarism detection software which is linked to the LMS aiming to review the students' submissions. This enhances students' capability for independent/group thinking and in submitting their high-quality work.

- **Grading Rubrics**

Grading rubrics are implemented for all formative and summative assessment of course work. This enhances teaching effectiveness in proper delivery of the course through proper evaluation of both formative and summative assessments.

- **Moderation of Final Exams**

Final Exam Questions Paper and modal Answers are moderated by the college before the exams. This helps to standardize question papers and improve the examinations' quality, as well as to observe that the course delivery meets the expected level and has covered the CLOs.

- **Measurement of PLO - CLO Achievement**

CLOs achievement is measured from the Course Learning Outcome Assessment Mapping. In case in failure in achieving the learning outcomes, that shall be discussed with the faculty. Matrix contains, the matrix of PLO – CLO achievement, review of program effectiveness, and action plan for further improvement in course delivery.

- **Faculty Research Support**

The college considers academic research as a vital tool for quality improvement in teaching. The college urges faculty members to publish in listed and indexed journals. In addition, the college encourages faculty research, by providing annual research excellence awards.

- **Academic Advising and Office Hours**

Office hours are allocated for faculty members to follow up with the students and provide the proper academic advice regarding choosing the subjects to be enrolled in or any other related to their study. This enables advisors to provide academic advising to the students, and other administrative and academic activities.

- **Alumni Survey**

The college regularly conducts alumni survey for every academic year. The results shall be collected and discussed to be raised for the necessary action(s).

Curriculum Design and PLO Alignment

The curriculum of the Bachelor of Science in Artificial Intelligence and Smart Systems is systematically designed to ensure full alignment between program learning outcomes (PLOs), course learning outcomes (CLOs), and the Emirates Qualifications Framework (QEmirates Level 6). The program follows a progressive structure that begins with foundational knowledge, advances through core AI methodologies, and culminates in applied learning experiences, including internships and a senior graduation project.

Major Compulsory Courses and PLOs Matrix

Program Learning Outcomes		K1	K2	S1	S2	R1	R2
Course Code	Course Title	Knowledge		Skills		Responsibility	
AIS120	Foundations of Data Science	✓		✓		✓	✓
AIS140	Programming with Python	✓		✓			✓
AIS210	Object-Oriented Programming	✓		✓			✓
AIS220	Machine Learning	✓		✓	✓	✓	✓
AIS230	Knowledge Representation	✓		✓	✓		
AIS240	Data Structures & Algorithms	✓		✓	✓		✓
AIS250	Introduction to Artificial Intelligence	✓		✓	✓		
AIS260	Fundamentals of Data & Network Communication	✓	✓	✓			✓
AIS270	Digital Systems	✓	✓	✓	✓		✓
AIS310	Deep Learning	✓		✓	✓	✓	✓
AIS320	Reinforcement Learning	✓		✓	✓		✓
AIS322	Natural Language Processing	✓		✓	✓		
AIS330	Computer Vision	✓	✓	✓	✓	✓	✓
AIS340	IoT and Robotics	✓	✓	✓	✓	✓	✓
AIS350	Database Systems	✓		✓			✓
AIS360	AI Systems Design and Deployment	✓	✓	✓	✓		
AIS370	Cybersecurity Principles	✓		✓	✓		✓
AIS371	Human–Robot Interaction	✓	✓	✓	✓	✓	✓
AIS380	Artificial Intelligence Safety and Security	✓		✓	✓	✓	
AIS420	Project Management	✓		✓		✓	✓
AIS410	Internship	✓	✓	✓	✓	✓	✓
AIS440	Senior Graduation Project	✓	✓	✓	✓	✓	✓

Major Elective Courses and PLOs Matrix

Program Learning Outcomes		K1	K2	S1	S2	R1	R2
Course Code	Course Title	Knowledge		Skills		Responsibility	
AIS460	Advanced NLP	✓		✓	✓		
AIS461	Advanced Computer Vision	✓		✓	✓		✓
AIS462	Cloud Computing	✓		✓	✓		
AIS463	Multi-Agent Systems	✓	✓	✓	✓	✓	✓
AIS464	AI for Smart Cities	✓	✓	✓	✓	✓	✓
AIS465	Medical Signal & Image Processing	✓		✓		✓	
AIS466	3D Vision and Augmented Reality	✓	✓	✓	✓		

Mathematics courses and PLOs Matrix

Program Learning Outcomes		K1	K2	S1	S2	R1	R2
Course Code	Course Title	Knowledge		Skills		Responsibility	
MAT 110	Calculus	✓		✓			✓
MAT 130	Linear Algebra	✓		✓			✓
MAT 140	Probability and Statistics	✓		✓			✓
MAT 150	Numerical Analysis	✓		✓			✓
MAT 160	Discrete Mathematics	✓		✓			✓
MAT 170	Optimization Techniques	✓		✓	✓		✓