



SZABIST
UNIVERSITY

ROBOTICS & ARTIFICIAL INTELLIGENCE



BS ARTIFICIAL INTELLIGENCE
MS DATA SCIENCE

About SZABIST University

Discover Yourself

SZABIST University is proud to offer quality education in the areas that are crucial for Pakistan's socio-economic development. It was established as a Degree Awarding Institute (DAI) in the year 1995 through the Legislative Act of Sindh Assembly and chartered as University by Sindh Assembly through Sindh Act No. XIX of 2023. It is ranked as one of the most reputed universities by the Higher Education Commission (HEC) of Pakistan and the Chartered Inspection and Evaluation Committee (CIEC).

Vision

SZABIST aims to be a globally recognized institute for excellence in education, research, development, and distinction in service.

Mission

SZABIST is committed to produce highly qualified professionals to:

- Meet national and global contemporary needs
- Conduct cutting edge research and development
- Provide hi-tech scientific and technological expertise
- Meet current and future socio-economic challenges
- Meet global citizenship responsibility

SZABIST University comprises six campuses located in Karachi, Hyderabad, Larkana, Islamabad, Dubai (UAE), and Gharo with a current student population of approximately 19,000. Collectively, over 31,000 talented graduates have been proudly awarded degrees by all campuses of SZABIST University. Our alumni are sought by national and multinational organizations and hold key positions in several reputable firms. All programs of SZABIST University are conducted under strict compliance of the relevant regulatory bodies such as NBEAC, NCEAC, NACTE, PEC and KHDA Dubai (UAE).

The university offers undergraduate, graduate and post graduate degrees in 5 different disciplines: Faculty of Management Sciences, Faculty of Computing and Engineering Sciences, Faculty of Media Sciences, Faculty of Education and Social Sciences, and Faculty of Life Sciences. Additionally, SZABIST University offers LLB program, CertHE (Law), and BABS program as external programs in affiliation with University of London and Coventry University, UK, respectively.

Moreover, SZABIST University has signed MoUs with various reputable and distinguished organizations and institutions such as Istanbul Medipol University, Turkey; University of London, UK; John Hopkins University (Gates Institute), TCF, ICRC, Aman Foundation and JS Bank. SZABIST University Karachi Campus is situated in the prime location of Clifton Block 5 (campus units: 79, 98, 99, 100, 153, 154, 172/1, 172/2).

Department of Robotics and Artificial Intelligence

The Department of Robotics and Artificial Intelligence at Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST) University stands at the forefront of nurturing innovation and excellence in the fields of Artificial Intelligence (AI) and Data Science (DS). As part of the esteemed Faculty of Computing and Engineering Sciences, the department of Robotics and Artificial Intelligence is dedicated to providing a broad-based, comprehensive education in artificial intelligence and allied domains. Our mission is to equip students with the knowledge and skills necessary to transform complex scenarios into actionable decisions through in-depth understanding and application of AI principles.

SZABIST University believes in conceptual learning and have developed a robust organizational network of reputable multinational and national enterprises for collaboration in computing. This network, along with our own software house, facilitates students in meeting the desired program educational objectives and learning outcomes, ensuring they are well-prepared for the challenges of the modern world.

The Department of Robotics and Artificial Intelligence at SZABIST is committed to producing highly qualified professionals who can meet national and global contemporary needs, conduct cutting-edge research and development, provide hi-tech scientific and technological expertise, meet current and future socio-economic challenges, and fulfill global citizenship responsibilities. Our faculty comprises well-trained and qualified professionals, including PhD and MS holders in various specializations, ensuring that our students receive the highest quality education and training.



BS Artificial Intelligence

BS (Artificial Intelligence)

The Bachelor of Science in Artificial Intelligence BS(AI) program is offered by the Department of Robotics and Artificial Intelligence. This comprehensive four-year program encompasses a total of 44 courses, amounting to 130 credit hours. To fulfill the degree requirements, students are provided with internship opportunities, integrating practical experience with academic learning. The BS(AI) program is structured as a full-time, daytime curriculum, meticulously designed to cover the forefront of technological advancements in fields such as Machine Learning, Deep Learning, Explainable AI, Evolutionary Computing, Computer Vision, Software Engineering, and Natural Language Processing. The program comprises of 49 credit hours of Computing Core courses, 15 credit hours of Domain Core courses, 21 credit hours of Domain Electives, 9 credit hours of Mathematics and Supporting courses, 3 credit hours of Elective Supporting courses, and 33 credit hours of General Education Requirement courses. The maximum duration of the program is six years.

Admission Requirements

The candidate must have completed Intermediate / A-levels (minimum 3 subjects) or equivalent with minimum 50 % marks (along with Mathematics subject) and Matric / O-Levels (minimum 8 subjects including 5 compulsory subjects; English, Urdu, Maths, Islamiat & Pakistan Studies). The candidate who have not studied Mathematics at intermediate level have to pass deficiency courses of Mathematics (06 credits) in first two semesters.

Inter Board Committee of Chairmen (IBCC) equivalency/attestation is required for O & A Levels/IB Diploma/High School Diploma/SSC & HSC or equivalent. General Paper (A Levels) will not be counted.

Fee Structure*

Application Processing Fee	:	Rs. 2,000/-
Admission Fee	:	Rs. 25,000/-
Security Deposit (refundable)	:	Rs. 15,000/-
Student Activity Charges	:	Rs. 1,500 /-
Tuition Fee (Per semester 18 Cr Hrs)	:	Rs. 136,000/-
Lab Charges per semester	:	Rs. 3,000/-
Course Registration Fee Per Course	:	Rs. 500/-
Examination Fee Per Course	:	Rs. 500/-

*SZABIST reserves the rights to revise the fees/withdraw of scholarship without any prior notice.



BS (Artificial Intelligence)

First Year

Semester-I

Calculus and Analytical Geometry
English Composition and Comprehension
Fundamentals of Programming
Lab: Fundamentals of Programming
Introduction to Computer Science
Lab: Introduction to Computer Science
Applied Physics
Lab: Applied Physics

Semester-II

Object Oriented Programming Techniques
Lab: Object Oriented Programming Techniques
Probability and Statistics
Digital Logic Design
Lab: Digital Logic Design
Islamic Studies/ Humanities
Pakistan Studies
Communication and Presentation Skills

Second Year

Semester-III

Data Structures and Algorithms
Lab: Data Structures and Algorithms
Computer Organization and Assembly Language
Lab: Computer Organization and Assembly Language
Discrete Mathematical Structures
Artificial Intelligence
Lab: Artificial Intelligence
Multivariable Calculus

Semester-IV

Computer Networks and Data Communications
Lab: Computer Networks and Data Communications
Database Systems
Lab: Database Systems
Design and Analysis of Algorithms
Programming for Artificial Intelligence
Lab: Programming for Artificial Intelligence
Linear Algebra
AI Elective - I

Third Year

Semester-V

Operating Systems
Lab: Operating Systems
Artificial Neural Networks
Lab: Artificial Neural Networks
Machine Learning
Lab: Machine Learning
Knowledge Representation and Reasoning
AI Elective - II
Entrepreneurship

Semester-VI

Technical and Business Writing
Computer Vision
Lab: Computer Vision
University Elective - I
Software Engineering
AI Elective - III
Community Service

Fourth Year

Semester-VII

Information Security
Lab: Information Security
Professional Practices
AI Elective - IV
AI Elective - V
Final Year Project - I
AI Elective - VI

Semester-VIII

Final Year Project-II
AI Elective - VII
Parallel and Distributed Computing
University Elective - II

Mathematics deficiency course will be offered to those students who have not studies mathematic at intermediate level.

Master of Science in Data Science

Master of Science in Data Science (MSDS)

The Master of Science in Data Science MS(DS) program is offered by the Department of Robotics and Artificial Intelligence. This two-year evening program requires the completion of 30 credit hours. The curriculum includes 3 core courses, 2 specialization courses in data science, and 3 elective courses. Additionally, students have the option to complete the MS(DS) either through coursework or with research work. For those choosing the coursework route, it is mandatory to complete 2 additional courses, each worth 3 credit hours. On the other hand, students opting for the research path must undertake either 2 Independent Research Studies (IRS), totaling 6 credit hours, or a research thesis, also totaling 6 credit hours. The maximum allowable duration to complete the MS(DS) degree is 4 years.

Admission Requirements

For admission in the MS (DS) program candidates must possess 16 years of relevant education (4 years BS(CS) or equivalent) with a minimum of 50% marks / 2.0 CGPA from HEC recognized University / Institute.

The students with 16 years of education in the disciplines of Information Technology, Software Engineering, Computer Engineering, Electrical Engineering, Statistics, Mathematics, Business Administration, Accounting & Finance, Economics, or other relevant disciplines, are also eligible to apply provided that they take deficiency courses.

GAT (General) or HAT or relevant is mandatory for MS (DS) students with a minimum 50% score. Last Degree verification from Higher Education Commission (HEC) is required.

Deficiency Courses

1. Programming Fundamentals (Core Programming Course)
2. Data Structures & Algorithms OR Design & Analysis of Algorithms
3. Database Systems

Fee Structure*

Application Processing Fee	:	Rs. 2,000/-
Admission Fee	:	Rs. 25,000/-
Security Deposit (refundable)	:	Rs. 15,000/-
Student Activity Charges	:	Rs. 1,500/-
Tuition Fee (Per Semester 3 Courses)	:	Rs. 73,800/-
Course Registration Fee Per Course	:	Rs. 500/-
Examination Fee Per Course	:	Rs. 500/-
Final Open Defense for MS by Research Program charges	:	Rs. 10,000/-

*SZABIST reserves the rights to revise the fees/withdraw of scholarship without any prior notice.



Master of Science in Data Science (MSDS)

Core Courses

1. Statistical and Mathematical Methods For Data Science
2. Tools and Techniques in Data Science
3. Machine Learning

Specialized Courses

1. Big Data Analytics
2. Deep Learning
3. Natural Language Processing
4. Distributed Data Processing

Elective Courses

- Advanced Computer Vision
- Algorithmic trading
- Bayesian Data Analysis
- Big Data Analytics
- Bioinformatics
- Cloud computing
- Computational Genomics
- Data Visualization
- Deep Learning
- Deep Reinforcement Learning
- Distributed Data Processing and Machine Learning
- Distributed Machine Learning in Apache Spark
- High-performance Computing
- Inference & Representation
- Natural Language Processing
- Optimization Methods for Data Science and Machine Learning
- Probabilistic Graphical Models
- Scientific Computing in Finance
- Social network analysis
- Time-series Analysis and Prediction



Admission Schedule

Admissions Start	:	May 27, 2024
Last date to Apply	:	July 24, 2024
Admission Test	:	July 29-31, 2024
Interviews	:	August 06 to 09, 2024
Classes Commence	:	September 09, 2024

APPLY ONLINE:

Log on to: <http://admissions.szabist.edu.pk>

For further information please contact:

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