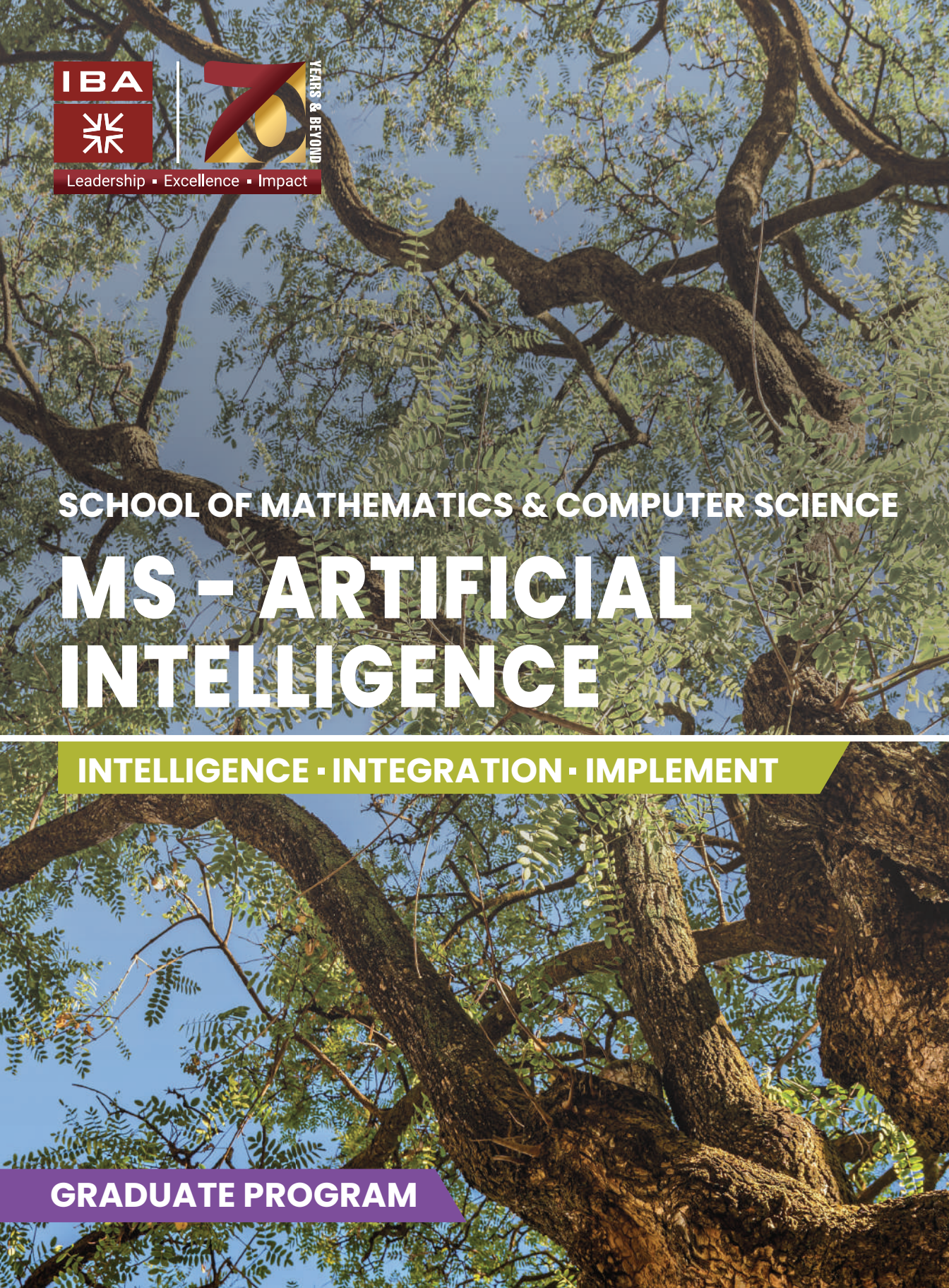
IBA
YEARS & BEYOND
Leadership ▪ Excellence ▪ Impact
SCHOOL OF MATHEMATICS & COMPUTER SCIENCE
MS – ARTIFICIAL INTELLIGENCE
INTELLIGENCE · INTEGRATION · IMPLEMENT
GRADUATE PROGRAM

SCHOOL OF MATHEMATICS & COMPUTER SCIENCE

IBA SMCS
School of Mathematics and Computer Science
75 YEARS & BEYOND
Leadership ▪ Excellence ▪ Impact

IBA Karachi is one of Pakistan's premier institutions, known for academic excellence, interdisciplinary learning, and cutting-edge research across diverse fields.

The School of Mathematics and Computer Science (SMCS) is a rapidly growing academic unit at IBA, offering excellence in computing and mathematical sciences. With a highly qualified faculty comprising researchers and industry experts, SMCS integrates rigorous academics with practical exposure. The school houses advanced labs in Artificial Intelligence, Web Science, Big Data, and Telecommunications. Its programs in Computer Science and Mathematics provide a solid foundation in theory and application—preparing students for research, higher education, and impactful careers in the tech and data-driven economy.

WHY MS-ARTIFICIAL INTELLIGENCE AT IBA?

In a world increasingly shaped by data and intelligent systems, Artificial Intelligence stands out as a transformative field that blends technology with human-like thinking. The MS Artificial Intelligence MS (AI) program prepares students to extract valuable insights from data and intelligence systems in a state-of-the-art manner. The program is designed for students who want to begin or advance their careers in artificial intelligence. It offers a blend of mathematics behind AI, machine learning, deep learning, computer vision, natural language processing, reinforcement learning, management of massive data sets, data visualization, and AI Ethics.

The program is open for undergraduate disciplines from national (HEC recognized) and international universities and thus prepares students for artificial intelligence applications in a wide range of domains. The core courses develop a strong mathematical, statistical, artificial intelligence, and machine learning foundation for the students. Students build this foundation through a diversity of available electives, notably deep learning, text analytics, computer vision, reinforcement learning, and social network analysis.

- 30 credit hours
- 02 years minimum completion time
- Industry-aligned curriculum with project-based learning
- Equips students with both theoretical & applied skills
- Exposure to Deep Learning and AI
- Foundation courses for non-CS students

COURSE STRUCTURE

The MS Artificial Intelligence program at IBA comprises 30 credit hours, including a mix of core and elective courses. Students without a computer science background are required to take two foundation courses: Data Structures & Algorithms and Databases. The curriculum covers areas such as machine learning, statistical modeling, Large Language Models, and Deep Learning. In addition, a research-based thesis option is available for eligible students who wish to pursue deeper specialization and academic research in the field.

SEMESTER 1

- Mathematical Foundations of AI
- Machine Learning
- Deep Learning

SEMESTER 2

- Multimodal LLMs
- Elective I
- Elective II

SEMESTER 3

- Elective III
- Thesis I / Elective IV

SEMESTER 4

- Elective V
- Thesis II / Project / Elective VI

ELECTIVE COURSES

The MS Artificial Intelligence electives at IBA offer a comprehensive blend of advanced topics designed to equip students with cutting-edge analytical and technical skills. Courses include Deep Learning, Probabilistic Reasoning, Text Analytics, Computer Vision, Information Retrieval, Computational Intelligence, Cybersecurity Operations, and LLM Security. This diverse portfolio enables students to specialize in modern data applications, enhancing their readiness for careers in AI, analytics, digital security, and research-intensive domains.

SCHOLARSHIPS, GRANTS & FINANCIAL ASSISTANCE

Installment Plan: The students can apply for 2-3 installments per semester. However, the installments must be paid within the same semester.

Qarz-e-Hasna: The IBA facilitates its students in securing an interest-free loan (Qarz-e-Hasna) to pay their tuition fee during their study period.

Need-based Financial Assistance: The IBA encourages aspiring students from diverse social backgrounds to enroll and study at the IBA.

Research & Teaching Assistantships (RA/TA): IBA offers part-time, paid opportunities for students to work as Research Assistants (RAs) or Teaching Assistants (TAs) as part of its financial assistance and academic enrichment initiatives

ACADEMIC ENVIRONMENT

ADVANCED DATA SCIENCE TRAINING

The MSAI program at IBA offers a solid foundation in statistical modeling, probabilistic reasoning, machine learning, and big data analytics. Students develop expertise in extracting insights and building solutions through theory and applied practice.

RESEARCH-DRIVEN & INDUSTRY-ALIGNED

With a strong emphasis on research, students engage in faculty-led projects across artificial intelligence, cloud computing, and deep learning. This exposure equips them for roles in R&D and industry innovation.

COMPUTATIONAL TOOLS & TECHNOLOGICAL EDGE

Students gain hands-on experience using modern computational tools and real-world data platforms. Labs, simulations, and collaborative projects prepare them for advanced research and dynamic industry roles.

CAREER OPPORTUNITIES

Graduates of the MS Artificial Intelligence program at IBA are equipped with advanced analytical and technical skills to solve real-world problems and lead data-driven innovation across industries including:

- AI Experts
- Machine Learning Engineer
- Data Scientist
- Computer Vision Engineer
- AI Product Manager
- AI Consultant

ELIGIBILITY CRITERIA

- Minimum 16 years of education in fields like Computer Science, Statistics, Economics, Mathematics, Accounting & Finance, Physics, or Engineering (e.g., Electrical, Electronics), or equivalent to at least 4 years at an HEC-recognized institution.
- A minimum CGPA of 2.5 (out of 4.0) or 60% marks in the most recent degree — percentage is considered only if CGPA is not available.

APTITUDE TEST EXEMPTION

Minimum score of 600 on the GMAT, or a GRE score of 160 in quantitative and 150 in verbal

FOR MORE INFORMATION

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