SCHOOL OF MATHEMATICS & COMPUTER SCIENCE

IBA SMCS School of Mathematics and Computer Science

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 BS-COMPUTER SCIENCE AT IBA?

The BSCS program at IBA Karachi offers a strong foundation in computer science, combining theory, programming, and problem-solving skills. It prepares students for careers in software development, data science, AI, and more, with a curriculum aligned to international standards and industry needs.

- 4-Year Program, NCEAC accredited
- Specialized focus in AI, Data Science, Cybersecurity & Software Development
- Outcome-Based Education aligned with global standards
- Hands-on learning through labs, projects & internships
- Solid foundation in programming & core CS concepts
- Strong industry linkages for high-impact careers

PROGRAM STRUCTURE

SEMESTER 1

- Computational Thinking
- Introduction to Programming
- Calculus-I
- Introduction to Statistics
- Islamic Scholarly Tradition
- Civics and Community Engagement

SEMESTER 2

- Object Oriented Programming Techniques
- Speech Communication
- Physics
- Discrete Mathematics
- Calculus-II
- Arts and Humanities

SEMESTER 3

- Digital Logic Design
- Data Structures
- Linear Algebra
- Numerical Analysis
- Social Science Elective

SEMESTER 4

- Introduction to Artificial Intelligence
- Computer Communication & Networking
- Theory of Automata
- Computer Architecture & Assembly Language
- Pakistan History
- Entrepreneurship

ELECTIVE COURSES

The students have the flexibility to tailor their learning through seven CS electives from areas like Artificial Intelligence, Machine Learning, Web and Mobile Development, Game Design, Blockchain, and Cybersecurity. In addition, students choose three general electives from diverse fields such as Economics, Finance, Management, Mathematics, and Liberal Arts. They also take one Social Science elective, allowing them to explore broader societal perspectives alongside their technical education.

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.

SEMESTER 5

- Software Engineering
- Operating Systems
- Database Systems
- Business Communication
- CS Elective-I

SEMESTER 6

- Design & Analysis of Algorithm
- Parallel & Distributed Computing
- CS Elective-II
- CS Elective-III
- General Elective-I
- Personal Effectiveness

SUMMER SEMESTER : Internship

SEMESTER 7

- Human Computer Interaction
- Final Year Project - CS
- CS Elective-IV
- CS Elective-V
- General Elective-II

SEMESTER 8

- Information Security and Ethics
- Final Year Project
- CS Elective-VI
- CS Elective-VII
- General Elective-III

ACADEMIC ENVIRONMENT

CUTTING-EDGE CURRICULUM WITH REAL-WORLD RELEVANCE

The BSCS curriculum at IBA follows an Outcome-Based Education (OBE) model to develop globally relevant computing skills, aligned with Seoul Accord standards.

STATE-OF-THE-ART LEARNING ENVIRONMENT

IBA provides BSCS students with cutting-edge labs, modern classrooms, and access to industry-standard tools to support hands-on, high-impact learning.

FACULTY THAT INSPIRES

Our faculty includes experienced researchers and practitioners who bring industry expertise, academic excellence, and mentorship. They support students beyond the classroom—fueling startups, guiding research, and nurturing leaders.

CAREER OPPORTUNITIES

Graduates of the BS Computer Science program at IBA-SMCS are well-equipped to excel across a wide range of technical and strategic roles. With strong foundations in software engineering, and systems design, students pursue careers in:

- Software Development & Engineering
- Data Science, AI/ML Engineer
- Cybersecurity & Information Assurance
- UI/UX Design & Digital Product Development
- Game Design & Interactive Media
- Entrepreneurship & Tech Startups

ELIGIBILITY CRITERIA

- Applicants must have secured a minimum of 60% marks in their HSSC (Pre-Engineering, Pre-Medical, or General Group with Mathematics) or an equivalent qualification such as A Levels with at least one 'B' and two 'C's in three principal subjects including Mathematics, with no grade below 'C'.
- Admission is granted based on overall performance in the IBA Aptitude Test and (possibly) a subsequent interview conducted by the admissions committee.

APTITUDE TEST EXEMPTION

Applicants may be exempted from the IBA Aptitude Test with a competitive SAT (minimum score as per merit), ACT (28+), or equivalent international qualifications. However, taking the test is strongly recommended to improve admission chances.

https://cs.iba.edu.pk/

FOR MORE INFORMATION

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IBA
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70 YEARS & BEYOND

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BS - COMPUTER SCIENCE

RIGOROUS · COMPETITIVE · INNOVATIVE

UNDERGRADUATE PROGRAM