



**SZABIST**

# COMPUTER SCIENCE



**BS COMPUTER SCIENCE**  
**BS SOFTWARE ENGINEERING**  
**MS COMPUTER SCIENCE**  
**PHD COMPUTING**



Discover  
Yourself

# BS Computer Science

## BS (Computer Science)

SZABIST offers a four-year (eight semesters) BS Computer Science degree program which is accredited by National Computing Education & Accreditation Council, (NCEAC). The program covers a wide range of courses in core Computer Science, Information Technology and Software Engineering. The program is essentially a day program and consists of 41 courses (five-six courses per semester) with a total of 130 credit hours. The complete course plan includes 8 technical electives and 4 university electives. These 8 technical electives provide intensive learning in the diversified areas of Computer Science and allied disciplines. Internship opportunities are provided to complete degree requirement. The maximum time limit to complete the degree program is six years.

## Admission Requirements

The candidate must have completed O-Levels (minimum 8 subjects including 5 compulsory subjects; English, Urdu, Maths, Islamiyat & Pakistan Studies) and A-levels (minimum 3 Subjects)/12th Grade/Intermediate with minimum 50% marks or equivalent from a recognized institution. Mathematical background will be preferred for BS-Computer Science program. Inter Board Committee of Chairmen (IBCC) equivalency is required for O & A Levels/IB Diploma/High School Diploma or equivalent. General Paper (A Levels) will not be counted.

## Fee Structure\*

|   | Pakistani Nationals | Foreign Nationals |
|---|---------------------|-------------------|
| Application Processing Fee                  | : Rs. 2,000         | US\$ 60           |
| Admission Fee                               | : Rs. 20,000        | US\$ 500          |
| Security Deposit (refundable)               | : Rs. 10,000        | US\$ 330          |
| Student Activity Charges                    | : Rs. 1,250         | US\$ 40           |
| Tuition Fee Per Semester                    | : Rs. 138,600       | US\$ 3,060        |
| (full load of 18 credit hours per semester) |                     |                   |

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



## BS (Computer Science)

### FIRST YEAR

#### Fall Semester

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

#### Spring Semester

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

### SECOND YEAR

#### Fall Semester

Discrete Mathematical Structures  
Data Structures and Algorithms  
Computer Organization and Assembly Language  
University Elective-1  
CS Supporting-1

#### Spring Semester

Database Systems  
Finite Automata Theory and Formal Languages  
Linear Algebra  
Design and Analysis of Algorithms  
University Elective -2

### THIRD YEAR

#### Fall Semester

Operating Systems  
Software Engineering  
Compiler Construction  
CS Supporting -2  
CS Supporting-3

#### Spring Semester

Technical and Business Writing  
Computer Networks and Data Communications  
Artificial Intelligence  
Lab: Artificial Intelligence  
CS Elective-1  
CS Elective-2

### FOURTH YEAR

#### Fall Semester

Final Year Project-I  
Parallel and Distributed Computing  
Professional Practices  
University Elective-3  
CS Elective-3

#### Spring Semester

Information Security  
Final Year Project-II  
University Elective-4  
CS Elective-4  
CS Elective-5

Mathematics deficiency course will be offered to those students who have limited mathematical background. (if deemed necessary by PM/HoD)

# Admission Schedule



# BS Software Engineering

## BS (Software Engineering)

The BS Software Engineering program at SZABIST is a full-time four-year degree program comprising eight semesters with minimum of 130 credit hours. The degree program is designed around a set of courses pertaining to the principles of software analysis, design, architecture, development, testing, and maintenance techniques that are necessary to produce high-quality software systems. Some additional courses from the disciplines of Computer Science, Mathematics, Management Science, and Humanities are part of the degree program to develop a broader knowledge base of the students. The BS Software Engineering program is offered through a trained foreign qualified faculty. It consists of 42 courses with a total of 130 credits hours. The maximum duration to complete the degree is six years.

## Admission Requirements

The candidate must have completed O-Levels (minimum 8 subjects including 5 compulsory subjects; English, Urdu, Maths, Islamiat & Pakistan Studies) and A-levels (minimum 3 Subjects)/12th Grade/Intermediate with minimum 50% marks or equivalent from a recognized institution. Mathematical background will be preferred for BS Software Engineering program. Inter Board Committee of Chairmen (IBCC) equivalency is required for O & A Levels/IB Diploma/High School Diploma or equivalent. General Paper (A Levels) will not be counted.

## Fee Structure\*

|   | Pakistani Nationals | Foreign Nationals |
|---|---------------------|-------------------|
| Application Processing Fee  | : Rs. 2,000         | US\$ 60           |
| Admission Fee   | : Rs. 20,000        | US\$ 500          |
| Security Deposit (refundable)   | : Rs. 10,000        | US\$ 330          |
| Student Activity Charges  | : Rs. 1,250         | US\$ 40           |
| Tuition Fee Per Semester<br>(full load of 18 credit hours per semester) | : Rs. 138,600       | US\$ 3,060        |

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



## BS (Software Engineering)

### First Year

#### Fall Semester

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

#### Spring Semester

Object-Oriented Programming Techniques  
Lab: Object-Oriented Programming  
Software Engineering  
Discrete Mathematical Structures  
University Elective  
Communication and Presentation Skills  
Islamic Studies/Humanities

### Second Year

#### Fall Semester

Data Structures and Algorithms  
Lab: Data Structures and Algorithms  
Software Requirement Engineering  
Human Computer Interaction  
Linear Algebra  
University Elective

#### Spring Semester

Operating Systems  
Lab: Operating Systems  
Database Systems  
Lab: Database Systems  
Software Design & Architecture  
Lab: Software Design & Architecture  
Probability and Statistics  
University Elective

### Third Year

#### Fall Semester

Software Construction and Development  
Lab: Software Construction and Development  
Data Communication Computer Networks  
Lab: Data Communication Computer Networks  
Technical and Business Writing  
SE Supporting

#### Spring Semester

Software Quality Engineering  
Information Security  
Professional Practices  
Web Engineering  
SE Elective  
SE Supporting

### Fourth Year

#### Fall Semester

Software Project Management  
Software Re-Engineering  
SE Elective  
Final Year Project – I

**Spring Semester**  
Final Year Project-II,  
University Elective,  
SE Elective

Mathematics deficiency course will be offered to those students who have limited mathematical background. (if deemed necessary by PM/HoD)

|                    |                      |
|--------------------|----------------------|
| Admissions Start   | : May 9, 2022        |
| Last date to apply | : June 24, 2022      |
| Admission Test     | : June 27-30, 2022   |
| Interviews         | : July 5-8, 2022     |
| Classes Commence   | : September 26, 2022 |

## APPLY ONLINE:

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

For further information please contact:

F-153, Clifton, Block-5, Karachi, Pakistan.

UAN: 111-922-478, Tel: (021) 358-23433, 358-30469, 358-30477.

Ext # : 333/334/335/336/304. [www.szabist.edu.pk](http://www.szabist.edu.pk)

# MS Computer Science & PhD Computing

## MS (Computer Science)

SZABIST offers MS (CS) degree in three domains: Core Computer Science area and in two specialization tracks, i.e., Software Engineering (SE) and Networks and Security (N&S). Students are required to complete 3 focused courses in any specific domain.

The program is of 2-year duration and is offered in the evening. It requires 33 credit hours to complete. Student has the option to complete MS through course work only or with research. If student opts for course work only, he/she is required to complete 11 courses of 3 credit hours each. Else, the student is required to complete 9 Courses (27 credit hours) and Two Independent Research Study (6 credit hours) OR One Thesis (6 credit hours). The maximum time limit to complete the MS degree is four years.

## Admission Requirements

For admission to MSCS program the candidates must possess 16 years of relevant education with minimum 60% marks/2.0 CGPA from a university recognized by HEC. GAT (General) or HAT relevant is mandatory for MS student with minimum 50% score. Last Degree verification from Higher Education Commission (HEC) is required.

## MS (Computer Sciences)

### Core Courses

Research Methodology  
Advanced Algorithms Analysis  
Theory of Computation  
Advanced Operating Systems  
Advanced Computer Architecture

### Courses for Specialization:

Computer Science (CS)  
Real-Time Systems  
Digital Image Processing  
Machine Learning  
Data Mining  
Operation Research  
Expert Systems  
Reverse Engineering  
Digital Forensics and Malware Analysis  
Advanced Resource Sharing Architecture  
Computer Vision  
Robotics  
Advanced Database Design  
Distributed Computing  
Systems and Network Programming  
Deep Learning  
Big Data Analytics  
Natural Language Processing

### Software Engineering (SE)

Software Requirement Engineering  
Software System Architecture  
Software System Quality  
Advanced Software Engineering  
Software Analysis and Testing  
Web Engineering  
Software Project Management

### Networks & Security (N&S)

Advanced Computer Networks  
Network Security  
Applied Cryptography  
Information Security  
Wireless Sensor Networks  
Telecom Policies and Regulations  
Mobile Ad-hoc Networks  
Advanced Data Communications  
Cyber Security  
Advanced Ethical Hacking  
Advanced Routing and Switching

## Fee Structure\* MS (Computer Science)

|   | Pakistani Nationals | Foreign Nationals |
|---|---------------------|-------------------|
| Application Processing Fee  | : Rs. 2,000         | US\$ 60           |
| Admission Fee   | : Rs. 20,000        | US\$ 500          |
| Security Deposit (refundable)                                     | : Rs. 10,000        | US\$ 330          |
| Student Activity Charges  | : Rs. 1,250         | US\$ 40           |
| Tuition Fee per semester<br>(full load of 3 courses per semester) | : Rs. 66,600        | US\$ 1,440        |

\*SZABIST reserves the right to revise the fees/withdraw of scholarship without any prior notice

## PhD (Computing)

SZABIST offers a PhD Degree in Computing that can be completed during the evenings in three years after the MS degree. 6 PhD courses and dissertation are required to graduate. A total of 48 credit hours must be completed.

## Specializations of Study

Specialized areas include Database Engineering, Data Warehousing & Mining, Networking & Communication, Business Intelligence, Process Modeling, Telecommunication, Mobile Communication, Mobile Computing, Artificial Intelligence, Software Engineering, Agent Systems, Multimedia & HCI Systems, Speech Recognition, e-Business and Technology Management, Intelligent Systems, Mechatronics, Machine Vision Image Processing, MIS and any other area which falls within the purview of Computer Science/Computing.

## Research

SZABIST strongly encourages the publication of research findings of Independent Studies, Thesis and Dissertation in research journals and conferences. SZABIST also publishes its own research journals.

## Admission Requirements

For admission in the PhD program, the candidate must have a 17.5 years of education in a relevant field with minimum 60% marks/ CGPA 3.00 from an HEC recognized institution. GRE/GAT (subject) with minimum 60% score is also relevant discipline required. Last Degree verification from Higher Education Commission (HEC) is required.

## PhD (Computing)

### Courses

Research Methodology  
Independent Research Study.  
Electives-I, II, III, IV  
Dissertation

List of Electives can be seen from Prospectus

## Fee Structure\* PhD (Computing)

|                               | Pakistani Nationals            | Foreign Nationals |
|-------------------------------|--------------------------------|-------------------|
| Application Processing Fee    | : Rs. 2,000/-                  | US\$ 60           |
| Admission Fee                 | : Rs. 20,000/-                 | US\$ 500          |
| Security Deposit (refundable) | : Rs. 10,000/-                 | US\$ 330          |
| Student Activity Charges      | : Rs. 1,250/-                  | US\$ 40           |
| Tuition Fee (Per Semester)    | : Rs. 90,000/- (Three courses) | US\$ 1,935        |

\*SZABIST reserves the right to revise the fees/withdrawal of scholarship without any prior notice.

