

# SOFTWARE ENGINEERING

# BS PROGRAM

4 YEARS

APPLY NOW

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# BS SOFTWARE ENGINEERING

4 YEARS

## SOFTWARE ENGINEERING

### CORE OBJECTIVE

The objective of the Bachelor of Software Engineering program is to equip students with the knowledge and skills necessary to contribute to the software industry. This includes understanding software development methodologies, programming languages, data structures, software design, and computer systems. The program also aims to develop problem-solving skills, and an understanding of ethical and professional issues in software engineering.



Recognized by:

**Higher Education Commission of Pakistan**

The **BRAINS** Institute Peshawar as a degree awarding institute recognized by HEC .

Chartered by:

Govt: of Khyber Pakhtunkhwa

## ELIGIBILITY CRITERIA

- The basic eligibility for admission to a BS Software Engineering program is a Higher Secondary School Certificate (HSSC) or equivalent qualification in Pre-Engineering or Computer Science group with at least 50% marks.
- Achieved a minimum score of 50% in the aforementioned qualifications
- An equivalency certificate from IBCC, if the education was completed in a foreign country or under a different system

## BS LEADING TO MS

A BS degree is typically the prerequisite for a Master of Science (MS) degree.

## FEE

ADP Program	Eligibility	Credit Hours	Admission fee	Semester Fee	Total Fee
Software Engineering	FA/FSc or Equivalent with 50% Marks	133	10000	60000	70000

## ADMISSIONS ARE OFFERED TWICE A YEAR

- Spring Admission : From February to March
- Fall Admission : From July to August

## CREDIT HOURS

A typical BS degree program usually requires around 120-130 credit hours.

## NUMBER OF SEMESTERS

A 4-year BS degree program typically consists of 8 semesters (2 semesters per year).

## LAPTOP SCHEME

BRAINS is set to offer prospective students the opportunity to acquire laptops through an easy installment plan, facilitated by bank financing.

## SCHOLARSHIP OFFERED BY

- Worker welfare Board
- KP Education foundation
- BRAINS'S Merit and Need Based Scholarship

## EXAMS & ASSESSMENT

The evaluation of students' study progress is done continuously throughout the semester. This assessment includes assignments, online quizzes, mid-term exam, and final-term exam.

## AWARD OF BS SOFTWARE ENGINEERING DEGREE

To be awarded a BS Software Engineering degree, a student typically needs to complete all the required coursework, practicals, and project work. This usually includes 130-136 credit hours of coursework. The student must maintain a minimum CGPA (2.5) throughout the program to be eligible for the degree.

## SOFTWARE DEVELOPMENT

BRAINS software Enterprise, set up in 1995, has a long history of making software. It's made software for all the school boards (BISE) in Khyber Pakhtunkhwa (KP), and these programs are still working well today. Over time, it's made a lot of different software development. For students, this is a great place to work and learn from experienced developers and engineers.

## CORE AREAS

- Programming Fundamentals
- Object-Oriented Programming
- Data Structures and Algorithms
- Software Engineering
- Database Systems
- Computer Networks
- Operating Systems
- Web Engineering
- Software Project Management
- Software Quality Assurance

## STRUCTURE

The Bachelor of Software Engineering is a four-year degree program. The first two years are usually focused on foundational courses in computer science and software engineering. The third year often involves more specialized courses in areas like networks, databases, and web engineering. The final year typically includes advanced courses and a capstone project where students apply what they've learned to a real-world software development project.

## FACULTY DETAIL

- 1 The Institution's structure of the Computer Science Department consists of a Dean or Chairman, followed by Professors, Associate Professors, Assistant Professors, and Lecturers. These individuals form the backbone of the department and are instrumental in delivering the program's curriculum.
- 2 To facilitate practical learning and development, the department collaborates with software houses and development projects. This provides students with the opportunity to engage in hands-on practice, interact with clients, and gain real-world experience in project implementation and tool learning.
- 3 Our students are well-prepared for industry placements and are encouraged to participate in entrepreneurship programs. This approach ensures that they are not only job-ready but also equipped with the skills to create their own ventures.

## JOBS AND CAREER FOR COMPUTER SCIENCE

The Bachelor of Science (BS) program in Computer Science and Software Engineering at BRAINS equips students with the skills and knowledge necessary for a diverse array of careers in the computer science realm. This includes roles in Software Development, Data Science, Cybersecurity, Network Administration, Database Administration, as well as opportunities in Research, Teaching, and Entrepreneurship

# CONTENTS FOR BS SOFTWARE ENGINEERING

## 1ST SEMESTER

- Introduction to Computing
- English Composition and Comprehension
- Calculus and Analytical Geometry
- Applied Physics
- Programming Fundamentals

## 2ND SEMESTER

- Object-Oriented Programming
- Pakistan Studies
- Multivariable Calculus
- Islamic Studies / Ethics
- Discrete Structures

## 3RD SEMESTER

- Data Structures and Algorithms
- Digital Logic Design
- Linear Algebra
- Probability and Statistics
- Computer Organization and Assembly Language

## 4TH SEMESTER

- Database Systems
- Operating Systems
- Theory of Automata
- Software Engineering
- Technical and Business Writing

## 5TH SEMESTER

- Design and Analysis of Algorithms
- Computer Networks
- Web Engineering
- Human Computer Interaction
- Software Construction

## 6TH SEMESTER

- Software Design and Architecture
- Software Quality Assurance
- Professional Practices
- Elective Course 1
- Elective Course 2

## 7TH SEMESTER

- Software Project Management
- Formal Methods in Software Engineering
- Software Requirements and Specifications
- Elective Course 3
- Elective Course 4

## 8TH SEMESTER

- Software Maintenance and Evolution
- Final Year Project
- Elective Course 5
- Elective Course 6

## DISCLAIMER

Course revisions may occur periodically as part of ongoing reviews to align them with topclass courses offered by foreign universities. During these reviews, the needs of the local industry and job market are also taken into account. Additionally, The BRAINS Institute reserves the right to modify the fee structure as needed