

Y&M, AKI'S
POONA COLLEGE OF ARTS, SCIENCE AND COMMERCE
CAMP, PUNE-411001

Department of Computer Science (PG-Center)

Name of Programme : B.Sc. Computer Science

Programme Outcomes:

B. Sc. Computer Science is a systematically designed three year course that prepares the student for a career in Software Industry. The syllabus of computer Science subject along with that of the three allied subjects (Mathematics, Electronics and Statistics) forms the required basics for pursuing higher studies in Computer Science. The Syllabus also develops requisite professional skills and problem solving abilities for pursuing a career in Software Industry.

- To develop problem solving abilities using a computer
- To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.
- To imbibe quality software development practices.
- To create awareness about process and product standards
- To train students in professional skills related to Software Industry.
- To prepare necessary knowledge base for research and development in Computer Science
- To help students build-up a successful career in Computer Science

Programme Specific Outcomes:

At first year of under-graduation: Basic foundation of two important skills required for software development is laid. A course in programming and a course in database fundamentals forms the preliminary skill set for solving computational problems. Simultaneously two practical courses are designed to supplement the theoretical training. The second practical course also includes a preliminary preparation for website designing in the form of HTML programming. Alongwith Computer Science two theory and one practical course each in Statistics, Mathematics and Electronics help in building a strong foundation.

At second year under-graduation: The programming skills are further strengthened by a course in Data structures and Object oriented programming. The advanced topics in Databases and preliminary software engineering form the second course. Two practical courses alongside help in hands-on training. Students also undertake a mini project using software engineering principles to solve a real world problem. Simultaneously two theory and one practical course each in Mathematics and Electronics help in strengthening problem solving abilities.

At third year under-graduation: Six theory papers in each semester and practical courses cover the entire spectrum of topics necessary to build knowledge base and requisite skill set. Third practical course also includes project work which gives students hands on experience in solving a real world problem.

COURSE OUTCOME:

F.Y.B.Sc. (C.S.):

Computer Science: Paper – I: Problem Solving Using Computers and 'C' Programming

- To develop Problem Solving abilities using computers
- To teach basic principles of programming
- To develop skills for writing programs using 'C'

Computer Science: Paper – II: File Organization and Fundamental of Databases

- To understand data processing using computers
- To teach basic organization of data using files
- To understand creations, manipulation and querying of data in databases

Computer Science: Paper III: Basic 'C' Programming and Database handling Practicals

- Design and implement a 'C' programs for simple problems
- Understand appropriate use of data types and array structures
- Understand use of appropriate control structures

Computer Science: Paper IV: HTML 5 programming and Advanced 'C' Programming practicals

- Understanding basic HTML designing
- Writing C programs using complex data structures such as pointers, structures etc.

S.Y.B.Sc. (C.S.):

Computer Science: Paper – I: DATA STRUCTURES USING ‘C’

- To learn the systematic way of solving problem
- To understand the different methods of organizing large amount of data
- To efficiently implement the different data structures
- To efficiently implement solutions for specific problems

Computer Science: Paper – II: Relational Database Management System

- To teach fundamental concepts of RDBMS (PL/PgSQL)
- To teach principles of databases
- To teach database management operations
- To teach data security and its importance
- To teach client server architecture

Computer Science: Paper – III: Data structures Practicals and C++ Practicals

- Design and implement Data structures and related algorithms
- Understand several ways of solving the same problem.

Computer Science: Paper – IV: Database Practicals & Mini Project using Software Engineering techniques

- Understanding the use of cursors, triggers, views and stored procedures
- Understanding the steps of system analysis and design
- Understanding Data requirements for a specific problem domain
- Designing Data base as per the Data requirements
- Designing queries as per the functional requirements

T.Y.B.Sc. (C.S.):

SEMESTER - III

Computer Science: Paper – I: Semester III: Systems Programming

- To understand the design structure of a simple editor.
- To understand the design structure of Assembler and macro processor for an hypothetical simulated computer.
- To understand the working of linkers and loaders and other development utilities.

- To understand Complexity of Operating system as a software.

Computer Science: Paper – II: Semester III: Theoretical Computer Science

- To have an understanding of finite state and pushdown automata.
- To have a knowledge of regular languages and context free languages.
- To know the relation between regular language, context free language and corresponding recognizers. To study the Turing machine and classes of problems.

Computer Science: Paper – III: Semester III: Computer Networks –I

- Understand different types of networks, various topologies and application of networks.
- Understand types of addresses, data communication.
- Understand the concept of networking models, protocols, functionality of each layer.
- Learn basic networking hardware and tools.

Computer Science: Paper – IV: Semester III: Internet Programming I

- Learn Core-PHP, Server Side Scripting Language
- Learn PHP-Database handling.

Computer Science: Paper – V: Semester III: Programming in Java-I

- To learn Object Oriented Programming language
- To handle abnormal termination of a program using exception handling
- To create flat files
- To design User Interface using Swing and AWT

Computer Science: Paper – VI: Semester III: Object Oriented Software Engineering

- Knowledge of Object Oriented Concepts
- Knowledge of Classical Software Engineering

SEMESTER - IV

Computer Science: Paper – I: Semester IV: Operating Systems

- To understand design issues related to process management and various related algorithms
- To understand design issues related to memory management and various related algorithms
- To understand design issues related to File management and various related algorithms

Computer Science: Paper – II: Semester IV: Compiler Construction

- To understand design issues of a lexical analyzer and use of Lex tool
- To understand design issues of a parser and use of Yacc tool
- To understand issues related to memory allocation
- To understand and design code generation schemes

Computer Science: Paper – III: Semester IV: Computer Networks –II

- Basic networking concepts.
- Understand wired and wireless networks, its types, functionality of layer.
- Understand importance of network security and cryptography.

Computer Science: Paper – IV: Semester IV: Internet Programming II

- Learn different technologies used at client Side Scripting Language
- Learn XML, CSS and XML parsers.
- One PHP framework for effective design of web application.
- Learn JavaScript to program the behavior of web pages.
- Learn AJAX to make our application more dynamic.

Computer Science: Paper – V: Semester IV: Programming in Java-II

- To learn database programming using Java
- To study web development concept using Servlet and JSP
- To develop a game application using multithreading
- To learn socket programming concept

Computer Science: Paper – VI: Semester IV: Computer Graphics

- Computer programming skills in C programming language
- Basic understanding of use of data structures
- Basic Mathematical concepts related to matrices and geometry

LAB COURSE

Lab Course I: System Programming & Operating System

- Design and implement System programs with minimal features to understand their complexity.
- Design and implement simulations of operating system level procedures.

Lab Course II: Programming in Java

- Implement core Java programs to solve simple problems
- Implement Client and Server end Java programs

Lab Course III: Programming in PHP & Project

- Implement Simple PHP programs to solve simple problems