

SUBJECT - COMPUTER SCIENCE (B.Sc.)

Programme outcomes (POs): Students taking admission to B.Sc. program are expected to get prepared with following outcomes:	
PO 1	Explaining the basic scientific principles and methods.
PO 2	Inculcating scientific thinking and awareness among the student.
Programme specific outcomes (PSOs)	
PEO 1	To prepare students for career in computer science and its applications in professional career
PEO 2	To develop the student to cope up with the advancements in respective science field
PEO 3	The student will determine the appropriate level of technology for use in: a) experimental design and implementation, b) analysis of experimental data, and c) numerical and mathematical methods in problem solutions.
PEO 4	Investigate and apply mathematical problems and solutions in a variety of contexts related to science, technology, business and industry, and illustrate these solutions using symbolic, numeric, or graphical methods

B.Sc.: Subject: Computer Science

Programme/Class: Certificate	Year: First	Semester: First
Subject: Computer Science		
Course Code: B070101T	Course Title: Problem Solving using Computer	
Course outcomes:		
CO 1: Understand hardware components of computer system such as memory system organization, input/output devices, aware of software components of computer system, and windows operating system concepts.		
CO 2: Develops basic understanding of computers, the concept of algorithm and algorithmic thinking.		
CO3: Develops the ability to analyze a problem, develop an algorithm to solve it.		
CO4: Develops the use of the Python programming language to implement various algorithms, and develops the basic concepts and terminology of programming in general.		
CO5: Introduces the more advanced features of the Python language		
Programme/Class: Certificate	Year: First	Semester: First
Subject: Computer Science		
Course Code: B070102P	Course Title: Software Lab using Python	
Course outcomes:		
1. To learn and understand Python programming basics.		
2. To learn and understand python looping, control statements and string manipulations.		
3. Students should be made familiar with the concepts of GUI controls and designing GUI applications.		
4. To learn and know the concepts of file handling, exception handling and database connectivity.		
Programme/Class: Certificate	Year: First	Semester: Second
Subject: Computer Science		
Course Code: B070201T	Course Title: Database Management System	
Course outcomes:		
After the completion of the course the students will be able to:		
1. Understands the basic concepts of data base management systems.		
2. Design E-R diagrams for real world applications.		
3. Formulate relational algebraic expressions using relational data models and languages.		
4. Apply normalization transaction properties and concurrency control to design database.		
5. Analyze the security algorithms for database protection.		

Programme/Class: Certificate	Year: First	Semester: Second
Subject: Computer Science		
Course Code: B070202P	Course Title: Database Management Systems Lab	
Course outcomes: Ability to:		
<ol style="list-style-type: none"> 1. Understand, analyze and apply common SQL statements including DDL, DML and DCL statements to perform different operations. 2. Design and implement a database schema for a given problem. 3. Do connectivity of PHP and MySQL to develop applications. 		
Programme/Class: Diploma	Year: Second	Semester: Third
Subject: Computer Science		
Course Code: B070301T	Course Title: Operating System	
Course outcomes:		
After the completion of the course the students will be able:		
<ol style="list-style-type: none"> 1. Understand role, responsibilities, features, and design of operating system. 2. Analyze memory management schemes and process scheduling algorithms. 3. Apply process synchronization techniques to formulate solution for critical section problems. 4. Illustrate concept of disk scheduling. 5. Evaluate process deadlock handling techniques. 		
Programme/Class: Diploma	Year: Second	Semester: Third
Subject: Computer Science		
Course Code: B070302P	Course Title: Operating Systems Lab	
Course outcomes: Ability to:		
<ol style="list-style-type: none"> 1. Use of Linux operating system and able to write shell programs. 2. Simulate and demonstrate the concepts of operating systems. 		
Programme/Class: Diploma	Year: Second	Semester: Fourth
Subject: Computer Science		
Course Code: B070401T	Course Title: Computer System Architecture	
Course outcomes:		
The student will be able to understand the basic arithmetic of a Computer System; how the data is represented, how the various operation are performed on the data, the basic circuits to perform these operations, how instructions are formatted and how these instructions are executed to accomplish a particular operation. Student can also learn the organization of the peripheral devices, the interface between these devices to the system. Student can also understand the architecture of a basic computer, its registers, bus system and the interaction flow among them.		
Programme/Class: Diploma	Year: Second	Semester: Fourth
Subject: Computer Science		
Course Code: B070402P	Course Title: Computer System Architecture Lab	
Course outcomes:		
An ability to understand:		
CO1 The functions of various hardware components and their building blocks		
CO2 Boolean algebraic expressions to digital design		
CO3 And implementation of different sequential and Combinational circuits		
CO4 computer buses and input/output peripherals		
CO5 memory hierarchy and design of primary memory		
Programme/Class: Bachelor in Science	Year: Third	Semester: Fifth
Subject: Computer Science		
Course Code: B070501T	Course Title: Analysis of Algorithm and Data Structures	
Course outcomes:		
CO 1: Understand that various problem solving categories exist such as; iterative technique, divide and conquer, dynamic programming, greedy algorithms, and understand various searching and sorting algorithms		
CO 2: Employ a deep knowledge of various data structures when constructing a program..		
CO 3: Design and construct simple object-oriented software with an appreciation for data abstraction and information hiding.		
CO 4: Effectively use software development tools including libraries, compilers, editors, linkers and debuggers to write and troubleshoot programs.		

Programme/Class: Bachelor In Science	Year: Third	Semester: Fifth
Subject: Computer Science		
Course Code: B070502T	Course Title: Soft Computing	
<p>Course outcomes: Upon the completion of this course the student will have the knowledge of soft computing concepts and he can apply them for practical applications. He would be able to choose and design suitable Neural Network for real time problems. He can appropriately use fuzzy rules and reasoning to develop decision making and expert systems. He would know the importance of optimization techniques and genetic programming.</p>		

Programme/Class: Bachelor of Science	Year: Third	Semester: Fifth
Subject: Computer Science		
Course Code: B070503P	Course Title: Lab on Algorithm and Data Structures with C++	
<p>Course outcomes: CO 1: Optimize the solution with respect to time complexity & memory usage CO 2: Assess how the choice of data structures and algorithm design methods impacts the performance of programs. CO 3: Choose the appropriate data structure and algorithm design method for a specified application. CO 4: Solve problems using data structures such as linear lists, stacks, queues, binary trees, binary search trees and writing programs for these solutions</p>		

Programme/Class: Bachelor of Science	Year: Third	Semester: Six
Subject: Computer Science		
Course Code: B070601T	Course Title: Data Communication and Computer Network	
<p>Course outcomes: After the completion of the course the students will be able:</p> <ol style="list-style-type: none"> 1. To develop understanding of computer networks and communication basics. 2. To understand design issues and services at different layers of reference models. 3. To learn various error detection/correction techniques, routing protocols, congestion control algorithms, and connection establishment/release. 4. To describe and analyze related technical, administrative, and social aspects of networking. 		

Programme/Class: Bachelor In Science	Year: Third	Semester: Six
Subject: Computer Science		
Course Code: B070602T	Course Title: Cyber Security & Cyber Laws	
<p>Course outcomes: After the completion of the course the students will be able to:</p> <ol style="list-style-type: none"> 1. Understand types of information, cyber threats, and national/international cyber security standards. 2. Do mathematical modeling and development of security techniques and information system. 3. Develop understanding of legal issues related to cyber security. 4. Apply ethical principles/responsibilities in cyber practices. 		

Programme/Class: Bachelor of Science	Year: Third	Semester: Six
Subject: Computer Science		
Course Code: B070603P	Course Title: Lab on Computer Networks	
<p>Course outcomes:</p> <p>CO1 Understand and explain the concept of Data Communication and networks, layered architecture and their applications.</p> <p>CO2 Analyze and Set up protocol designing issues for Communication networks.</p> <p>CO3 Evaluate data communication link considering elementary concepts of data link layer protocols for error detection and correction.</p> <p>CO4 Apply various network layer techniques for designing subnets and supernets and analyze packet flow on basis of routing protocols.</p> <p>CO5 Estimate the congestion control mechanism to improve quality of service of networking application</p>		