

Department of Computer Science

(B.Sc. Computer Application and B.Sc. Information Technology)

Vision

- To be a department of academic excellence with total commitment to quality education in Computer Science and related fields with a holistic concern for better life, society and environment.
- To develop the next generation of high quality Information Technology professionals to cater the needs of the IT industry.

Mission

- To educate students to be successful, ethical and effective problem solvers and life-long learners who will contribute positively to the economic well-being of the nation.
- To provide quality education to meet the need of profession and society.
- To provide learning ambience to generate innovative and problem solving skills with professionalism.
- To enhance Industry Institute Interaction programme to get acquainted with the corporate culture.
- To prepare students to function effectively in a dynamic technological era.
- To promote the development of computer- related skills for immediate application to other curricular areas.
- To facilitate the development and application of problem solving skills in students.

B.Sc. (COMPUTER APPLICATION)

Vision

The department of B.Sc.(Computer Application) endeavors to provide an intellectual environment promotes the search for new knowledge in a highly dynamic computing world through its quality education.

Mission

The focus of B.Sc.(Computer Application) is on comprehensive, interdisciplinary teaching in computer applications, so as to enable learning and applying new innovations as the field evolves.

Program Objective

- PO 1 : Employed in computer technology related positions and be technically skilled to pursue higher studies.
- PO 2 : Keenly involved in social and professional service at local, national and global levels.
- PO 3 : Apply modern advanced technological tools for performing problem solving, analysis and synthesis by identifying various computer related technical solutions.
- PO 4 : Outshine themselves as Software Engineers, System Analyst, Software developers, Testers etc. and procure the leadership qualities.
- PO 5 : Get specialization in the course through their Masters Degree.
- PO 6 : Acquire the knowledge in Marketing and apply the marketing skill after building the products.
- PO 7 : Identify, analyze and execute the problem with the software knowledge.

Program Specific Objective

- PSO 1 : Understand the basic concepts of digital fundamentals, OOP concepts, Databases , Microprocessor and assembly languages, web and other applications.
- PSO 2 : Understand standard software engineering and project management concepts in software development with the use of visual programming environment.
- PSO 3 : Demonstrate the understanding of the values and working of the software aspects of computer systems.
- PSO 4 : Attain the ability to plan and develop computer applications, evaluate and identify possible risks and provide pioneering solutions.
- PSO 5 : Discover technical knowledge in various areas of Computer Applications and experience an environment helpful in enlightening skills for successful career.

PSO 6 : Attain proficiency in successful designing pioneering solutions for solving real life business and business developing issues with a desire for quality, capability and complete approach.

PSO 7 : Attain capability of implementing new technologies and continuously upgrading their skills with an attitude towards independent and constant learning.

Course Objectives :

Semester – I

Core Paper C-I (A) : PROGRAMMING USING C/C++

The course is designed to provide intensive knowledge of C/C++ language. The students will be able to develop logics which will help them to create programs, applications in C/C++. By learning the basic programming constructs they can easily switch over to any other program in the future.

Core Paper C-I (B) : PROGRAMMING USING C/C++ LAB

The course is designed to provide practical exposure on C/C++ language. By using the basic programming constructs they will programs and applications.

Core Paper C-II : DISCRETE STRUCTURE

The course objective is to make the students able to explain and apply the basic methods of discrete mathematics in Computer Science. It will also help the students to reason mathematically about various data types and structures such as numbers, sets, graphs, tree etc. used in computer algorithms and systems. The students will also be able to model and analyze the computational processes using the analytic methods.

Semester – II

Core Paper C-III (A) : PROGRAMMING USING JAVA

This course provides an introduction to Object Oriented Programming using Java. On the completion of the course, the students should know the various models of object oriented programming such as abstract data types, inheritance, encapsulation and polymorphism.

Core Paper C-III (B) : PROGRAMMING USING JAVA LAB

This course provides practical exposure to Object Oriented Programming using Java. The students will be able to develop applications to implement concepts such as abstract data types, inheritance, encapsulation and polymorphism.

Core Paper C-IV (A) : PROGRAMMING USING DATA STRUCTURE

To evaluate how the choice of data structures and algorithm design methods effects the performance of programs. It will help in solving problems using data structures such as linear lists, stacks, queues, binary trees, graphs etc. and writing programs for these solutions.

Core Paper C-IV (B) : PROGRAMMING USING DATA STRUCTURE LAB

The course objective is to provide practical exposure to students for solving problems using data structures such as linear lists, stacks, queues, binary trees, graphs etc.

Semester – III

Core Paper C-V (A) : COMPUTER SYSTEM ARCHITECTURE

The course objective is to acquaint students about hardware design, logic design, basic structure and behavior of the various functional components of the computer and how they act together to provide the processing needs of the user.

Core Paper C-V (B) : COMPUTER SYSTEM ARCHITECTURE LAB

The course objective is to teach the students the computer instructions and mnemonics available in computer architecture and then develop programs using C to simulate different machines based on the Computer instructions (Memory Reference, Register Reference and Input/Output Instructions).

Core Paper C-VI (A) : OPERATING SYSTEM

The course objective is to familiarize students with the knowledge of process control, threads, concurrency, memory management scheduling, I/O files, distributed systems, security etc. It will help to evaluate a computer based system, process, component or program to meet the desired needs.

Core Paper C-VI (B) : OPERATING SYSTEM LAB

The course objective is to have practical classes to familiarize students with the knowledge of process control, threads, concurrency, memory management scheduling, I/O files, distributed systems, security etc.

Core Paper C-VII (A) : COMPUTER NETWORKS

The course objective is to help the students to obtain a theoretical understanding of data communication and computer networks and gaining practical knowledge in installation, monitoring and troubleshooting.

Core Paper C-VII (B) : COMPUTER NETWORKS LAB

The course objective is to make the students familiar with the basic network administration commands and to make them understand the network environment and visualize a network topology and observe its performance. They will also be taught to analyze the traffic flow and the contents of protocol frames and design and configure a network for an organization.

Skill Enhancement Course SEC-I : HTML

The course objective is to make the students acquainted with the client server architecture and be able to create and analyze a web page and identify its elements and attributes.

Semester – IV

Core Paper C-VIII (A) : DESIGN AND ANALYSIS OF ALGORITHM

The course objective is to use different models of problem solving to demonstrate clever and efficient ways to solve a given problem. The design and analysis of several algorithms will be performed to solve various problems.

Core Paper C-VIII (B) : DESIGN AND ANALYSIS OF ALGORITHM LAB

The course objective is to make the students able to design and implement various data structure operations like searching, insertion, and deletion, traversing mechanism etc. algorithms.

Core Paper C-IX (A) : SOFTWARE ENGINEERING

The course objective is to help the students to develop skills that will enable them to produce software of high quality that is reliable, easy to understand, modify and maintain.

Core Paper C-IX (B) : SOFTWARE ENGINEERING LAB

The course objective is to teach basic concepts of UML and master the vocabulary, rules, and idioms of the UML and learn how to model it effectively. The students will also be able to apply the UML to solve a number of common modeling problems.

Core Paper C-X (A) : DATABASE MANAGEMENT SYSTEM

The course objective is to make the students understand the role of a database management system in an organization. It will also help them to understand the basic database concepts including the structure and operation of the relational data model.

Core Paper C-X (B) : DATABASE MANAGEMENT SYSTEM LAB

The course objective is make students able to develop both simple and advanced database queries using Structured Query Language (SQL). It will help the students to retrieve, update and display data using SQL integrated into stored procedures, Functions, Packages and Triggers.

Skill Enhancement Course SEC-II : PL/SQL

The course objective is make students able to develop both simple and advanced database queries using Structured Query Language (SQL). It will help the students to retrieve, update and display data using SQL integrated into stored procedures, Functions, Packages and Triggers.

Semester – V

Core Paper C-XI (A) : INTERNET TECHNOLOGIES

The course objective is to teach the basics involved in publishing content on the World Wide Web. The student will be acquainted with the client server architecture and able to develop a web application using java technologies. Students will be able to gain the skills and project based experience needed for entry into web application and development careers.

Core Paper C-XI (B) : INTERNET TECHNOLOGIES LAB

The course objective is to provide practical exposure to the students to acquire knowledge and skills for creation of web site considering both client and server side. The students will know how to develop javascript codes and will also learn about JSP and JDBC.

Core Paper C-XII (A) : ARTIFICIAL INTELLIGENCE

The course objective is to help the student to have an overview of Artificial Intelligence approaches and principles. It will also assist in developing the understanding of the building blocks of AI as presented in terms of intelligent agent ie. search, knowledge representation, inference , logic and learning.

Core Paper C-XII (B) : ARTIFICIAL INTELLIGENCE LAB

The course objective is to make the students aware about PROLOG programming and help them to develop and execute programming using various constructs and logics of PROLOG programming.

Discipline Specific Elective DSE-I (A) : WINDOWS PROGRAMMING USING VISUAL BASIC.NET

The course objective is to help the students use Visual Basic.Net to build Windows Applications using structured and object-based programming techniques. Students will be able to analyze program requirements, develop programs with GUI interfaces and perform tests to revise existing code.

Discipline Specific Elective DSE-I (B) : WINDOWS PROGRAMMING USING VISUAL BASIC.NET LAB

The course objective is to help the students to have practical exposure on Visual Basic.Net. The students will build Windows Applications using structured and object-based programming techniques.

Discipline Specific Elective DSE-II (A): OPERATION RESEARCH

The objective of the course is to make the students use the basic tools of Operations Research in solving the problems using mathematical approach for decision making. It will help the students to use numerical methods and techniques for decision making, formulating the model and applications that are used in solving business decision problems.

Discipline Specific Elective DSE-II (B): OPERATION RESEARCH LAB

The course objective is to prepare the students for various operation research problems such as solving a linear programming problem using graphical method, branch and bound

method, simplex method, dual simplex method, M-charnes method, Two phase method, etc.

Semester – VI

Core Paper C-XIII : THEORY OF COMPUTATION

The course objective is to provide a proper connection between algorithmic problem solving and the theory of languages and automata and develop them into a mathematical view towards algorithmic design and computation.

Core Paper C-XIV (A) : COMPUTER GRAPHICS

The course objective is to help the students to gain experience in interactive computer graphics and in using a graphics application programming interface. This course will introduce students to all facets of computer graphics including hardware, software and application.

Core Paper C-XIV (B) : COMPUTER GRAPHICS LAB

The course objective is to provide practical exposure on computer graphics and help the students to develop and implement various algorithms such as Bresenham's Line Drawing, Mid-Point Circle drawing, Cohen and Sutherland line clipping, scan line fill, etc.

Discipline Specific Elective DSE-III (A): ECOMMERCE AND PHP PROGRAMMING

The objective of Ecommerce is to make the student understand how Electronic commerce is affecting business enterprises, governments and consumers. It will also provide understanding of the different types and key components on business models in the new economy. PHP programming will provide the knowledge necessary to design and develop dynamic and database driven web pages. Students will be introduced with the framework and syntax of PHP and will learn the important techniques to build dynamic web sites.

Discipline Specific Elective DSE-III (B): ECOMMERCE AND PHP PROGRAMMING LAB

The course objective is to make the students aware about the various constructs and logics of PHP programming and help them to develop simple programs based on PHP programming.

Discipline Specific Elective DSE-IV : DISSERTATION/PROJECT

The objective of dissertation/project is to enable the student to develop deeper understanding, knowledge and capabilities in the context of the programme of study through practical exposure. It will also allow students to have an in-depth study of an area that they are interested in and to enable them to exhibit skills and knowledge acquired throughout their undergraduate programme.

B.Sc. (INFORMATION TECHNOLOGY)

Vision

The department of B.Sc.(Information Technology) strives to produce eminent graduates trained in the latest technologies and tools and to create excellent professional in the area of computer science to serve the industry and society.

Mission

The focus of B.Sc.(Information Technology) is to provide quality education in association with the industrial requirements and to guarantee technical expertise by implementing well-organized teaching learning process.

Program Objective

- PO 1 : Evolve as globally competent computer professionals having leadership skills for developing innovative solutions in multidisciplinary domains.
- PO 2 : Excel as socially committed individual having high ethical values and understanding for the needs of the society.
- PO 3 : Become an entrepreneur who can provide solutions and develop software products for enterprise needs.
- PO 4 : Involve in lifelong learning to adapt the technological advancements in the emerging areas of computer applications.

- PO 5 : Utilize modern and advanced technological tools for performing problem solving, analysis and synthesis by identifying various computer technical solutions.
- PO 6 : Recognize the social and ethical responsibilities of a professional working in the discipline.
- PO 7 : Able to apply IT tools, techniques & skills necessary for developing Computer Applications in the industry.

Program Specific Objective

- PSO 1 : Skillfully trained in the areas of programming , multimedia, animation, web development, networking and to gain knowledge in various domain based electives..
- PSO 2 : Understand the modern computer languages and applications and employ them to create platforms for successful career and to pursue higher studies
- PSO 3 : Inculcate skills to excel in the areas of Information Technology and its enabled services, government and private sectors, Research and Teaching.
- PSO 4 : Understand and be able to design, develop algorithms and provide software solutions to satisfy the industrial needs.
- PSO 5 : Use current techniques, skills and tools necessary for computing practices.
- PSO 6 : Work as teams to build software systems and apply the technologies in various fields of computer technology, including hardware problems, web site development, databases and other software engineering techniques.

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Skill Enhancement Course SEC-II : XML

The course objective is make students understand the evolution, theoretical context and application of XML and to attain practical experience with XML, schemas, XSLT and

XML publishing. The course also helps in recognizing the relationship of XML and metadata and make the students familiar with the broader use of XML on the internet.

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