

**DEPARTMENT OF  
INFORMATION TECHNOLOGY  
U.G.**

# **DEPARTMENT OF INFORMATION TECHNOLOGY-UG**

**Programme Code: I**

**Programme Name: B.Sc. Information Technology**

## **Programme Outcomes**

1. Apply the knowledge of Mathematics, Science and Computing in the core information technologies. (Global)
2. Design and develop software solutions for contemporary business environments by employing appropriate problem solving strategies. (Global)
3. Analyze common business functions and identify, design, and develop appropriate information technology solutions (in web, desktop, network, and/or database applications). (Global)
4. Learn future technologies through acquired foundational skills and knowledge and employ them in new business environments. (Global)
5. Practice communication, problem solving and decision-making skills through the use of appropriate technology and with the understanding of the business environment. (National)
6. Select and apply current techniques, skills and tools necessary for computing practice and integrate IT-based solutions into the user environment effectively. (National)

## **Programme Specific Outcomes**

1. Analyze and recommend the appropriate IT infrastructure required for the implementation of a project. (Regional)
2. Design, develop and test software systems for world-wide network computers to provide solutions to real world problems. (Global)
3. Analyze common business functions and identify, design and develop appropriate information technology solutions. (National)
4. Learn future technologies through acquired foundation skills and knowledge and employ them in business environments and to identify research gaps. (National)
5. Use and apply current technical concepts and practices in the core Information Technologies of human computer interaction, information management, programming and networking. (Global)
6. Effectively integrate IT-based solutions into the user environment. (Regional)

## Course Outcomes

### SEMESTER – I

**Subject Code: 17I11**

**Course Name: PROGRAMMING IN C (Global)**

Upon completion of the course, the students will be able to

1. Understand the basic concepts of program development statements and its syntax.
2. Differentiate the various types of arrays and Know about the various types of Functions and String handling mechanisms.
3. Grasp the Concepts of Structures and Unions.

**Subject Code: 17I1P**

**Course Name: PROGRAMMING IN C LAB (Global)**

Upon completion of the course, the students will be able to

1. Use conditional expressions and looping statements to solve problems associated with conditions and repetitions.
2. Use Arrays and Functions in programs.
3. Use pointers, structures and files handling.

**Subject Code: 17AI1**

**Course Name: DISCRETE MATHEMATICS (National)**

Upon completion of the course, the students will be able to

1. Comprehend the notion of mathematical thinking, Mathematical proofs, and Algorithmic thinking and to apply them in problem solving.
2. Posses the Knowledge of the basics of Relations and to apply the methods in problem solving.
3. Equip to use effectively algebraic techniques to analyse basic discrete structures and algorithms.

**Subject Code: 17SEI1P**

**Course Name: HTML AND OFFICE AUTOMATION LAB (National)**

Upon completion of the course, the students will be able to

1. Create a well-designed and well-formed, professional Web site utilizing the most current standards and practices.
2. Demonstrate knowledge in web technologies including HTML.
3. Identify Web authoring obstacles created by the availability of various web browsers and markup language versions.

**Subject Code: 17NMI1**

**Course Name: WINDOWS TOOLS AND APPLICATIONS (Regional)**

Upon completion of the course, the students will be able to

1. Give students an in-depth understanding of why computers are essential components.
2. Provide hands-on use of Microsoft Office applications Word, Excel, Access and PowerPoint.
3. Completion of the assignments will result in MS Office applications knowledge and skills.

## SEMESTER – II

**Subject Code: 17I21**

**Course Name: OBJECT ORIENTED PROGRAMMING WITH C++ (Global)**

Upon completion of the course, the students will be able to

1. Explain the top-down and bottom-up programming approach and apply bottom up approach to solve real world problems.
2. Describe the concept of inheritance, overloading, constructors and apply real world problems.
3. Discuss the generic data type for the data type independent programming which relates it to reusability.

**Subject Code: 17I2P**

**Course Name: OBJECT ORIENTED PROGRAMMING WITH C++ LAB (Global)**

Upon completion of the course, the students will be able to

1. Ability to use the relative merits of C++ as an object oriented programming language.
2. Acquire Knowledge to implement programs in C++ Using polymorphism.
3. This lab work provides hands-on programs using C++ language learnt in theory session.

**Subject Code: 17AI2**

**Course Name: RESOURCE MANAGEMENT TECHNIQUES (National)**

Upon completion of the course, the students will be able to

1. This module aims to introduce students to use quantitative methods and techniques for effective decisions-making.
2. Solve Linear Programming, Transportation and Assignment Problems.
3. To prepare and motivate future specialists to continue in their study by having an insightful overview of operations research.

**Subject Code: 17SEI2P**

**Course Name: DESKTOP PUBLISHING LAB (Regional)**

Upon completion of the course, the students will be able to

1. Create business forms (e.g., business cards, letterhead, desk notes) and Resume.
2. Create multi-page, multicolumn documents (e.g., newsletters, magazines).
3. Understood the creating and printing greeting cards, banners, postcards, candy wrappers using CorelDraw.

**Subject Code: 17NMI2**

**Course Name: INTRODUCTION TO INTERNET (National)**

Upon completion of the course, the students will be able to

1. Build tools that assist in automating data transfer over the Internet.
2. Employ emerging technology to satisfy challenges or opportunities faced by organizations or individuals.
3. Understood the Design and create IT-based solutions using HTML and JavaScript.

### SEMESTER – III

**Subject Code: 17I31**

**Course Name: RDBMS (National)**

Upon completion of the course, the students will be able to

1. Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.
2. Design ER-models to represent simple database application scenarios.
3. Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.

**Subject Code: 17I32**

**Course Name: DATA STRUCTURE AND ALGORITHMS (National)**

Upon completion of the course, the students will be able to

1. Students understand the advantages and disadvantages of fundamental data structures and can implement them using object oriented design principles.
2. Demonstrate an understanding of basic data structures (such as an array-based list, linked list, stack, queue, binary search tree) and algorithms.
3. Demonstrate the ability to analyze, design, apply and use data structures and algorithms to solve real time problems and evaluate their solutions.

**Subject Code: 17I3P**

**Course Name: VB AND RDBMS LAB (Global)**

Upon completion of the course, the students will be able to

1. Describe the basic structure of a Visual Basic program and main features of the integrated development environment (IDE).
2. Create applications using Microsoft Windows Forms.
3. Know how to write SQL code to build and maintain database structures.

**Subject Code: 17AI3**

**Course Name: NUMERICAL METHODS (National)**

Upon completion of the course, the students will be able to

1. Apply numerical methods to find solution of algebraic equations using different methods under different conditions, and numerical solution of system of algebraic equations.
2. Grasping the basic elements of numerical methods with application to approximation, integration, differentiation, differential equations and algebraic equations.
3. Familiar with numerical solutions of nonlinear equations in a single variable.

**Subject Code: 17SEI3P**

**Course Name: MULTIMEDIA LAB (Global)**

Upon completion of the course, the students will be able to

1. Identify the basic tools and components of a multimedia project.
2. Apply basic elements and principles of photo editing software to achieve a great photo effect by applying effects like color, shadows, alteration of backgrounds, cropping and collage making.
3. Create simple shapes using animation editing software and design simple animation by applying shape tweens and motion tweens.

## SEMESTER – IV

**Subject Code: 17I41**

**Course Name: OPERATING SYSTEM & SYSTEM SOFTWARE (National)**

Upon completion of the course, the students will be able to

1. Describe and explain the fundamental components of a computer operating system.
2. Define, restate, discuss, and explain the policies for scheduling, deadlocks, memory management, synchronization, system calls, and file systems
3. Understand different components of system software.

**Subject Code: 17I4P**

**Course Name: UNIX AND LINUX PROGRAMMING LAB (National)**

Upon completion of the course, the students will be able to

1. Write shell scripts in order to perform shell programming.
2. Acquire knowledge about text processing utilities, process management and system operation of LINUX.
3. Run various UNIX commands on a standard UNIX/LINUX Operating system.

**Subject Code: 17I42**

**Course Name: COMPUTER GRAPHICS (Global)**

Upon completion of the course, the students will be able to

1. List out the basic concepts used in computer graphics.
2. Develop the line and circle generation algorithms.
3. Implement various algorithms to scan, convert the basic Geometrical Primitives, Transformations, Area filling and Clipping.

**Subject Code: 17AI4**

**Course Name: FINANCIAL AND COST ACCOUNTING (Global)**

Upon completion of the course, the students will be able to

1. Acquire conceptual knowledge of basics of accounting.
2. Identify events that need to be recorded in the accounting records.
3. Equip with the knowledge of accounting process and preparation of final accounts of sole trader.

**Subject Code: 17SEI4P**

**Course Name: TALLY LAB (National)**

Upon completion of the course, the students will be able to

1. This course helps students to work with well-known accounting software i.e. Tally.
2. Ability to create company, enter accounting voucher entries including advance voucher entries, do reconcile bank statement, do accrual adjustments, and also print financial statements, etc. in Tally software.
3. Ready with required skill for employability in the job market.

### SEMESTER – V

**Subject Code: 17I51**

**Course Name: PROGRAMMING IN JAVA (National)**

Upon completion of the course, the students will be able to

1. Knowledge of the structure and model of the Java programming language.
2. Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
3. Propose the use of certain technologies by implementing them in the Java programming language to solve the given problem.

**Subject Code: 17I52**

**Course Name: DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION (Global)**

Upon completion of the course, the students will be able to

1. Apply Arithmetic operations in any number system and various techniques to simplify the Boolean functions.
2. Build Combinational Circuits that perform arithmetic operations & Apply the knowledge of combinational and sequential logical circuits to design computer architecture.
3. Understand the input / output and Memory related concepts.

**Subject Code: 17I53**

**Course Name: COMPUTER NETWORKS (Global)**

Upon completion of the course, the students will be able to

1. Recognize the technological trends of Computer Networking.
2. Perceive and describe the layered protocol model.
3. Describe, analyze and evaluate a number of data link, network, and transport layer protocols.



**Subject Code: 17I5P**

**Course Name: PROGRAMMING IN JAVA LAB (Global)**

Upon completion of the course, the students will be able to

1. Familiarize the Internet Programming using Java Applets.
2. Apply event handling on AWT components.
3. Make a reusable software component, using Java Bean.

**Subject Code: 17IE5A**

**Course Name: CLIENT SERVER COMPUTING (National)**

Upon completion of the course, the students will be able to

1. Comprehend the basic concepts of the client-server model.
2. Understand how Client-Server systems work.
3. Improve the performance and reliability of Client Server based systems.

**Subject Code: 17IE5B**

**Course Name: SYSTEM ANALYSIS AND DESIGN (Regional)**

Upon completion of the course, the students will be able to

1. Gather data to analyze and specify the requirements of a system.
2. Build general and detailed models that assist programmers in implementing a system.
3. Design a database for storing data, a user interface for data input and output, and controls to protect the system and its data.

**Subject Code: 17SEI5P**

**Course Name: PHP AND MYSQL LAB (National)**

Upon completion of the course, the students will be able to

1. Discuss the concepts of **PHP** and its advantages over other languages.
2. Use HTML form elements that work with any server-side language.
3. Create a **PHP** web page and perform various **MySQL** database queries.

## SEMESTER – VI

**Subject Code: 17I61**

**Course Name: SOFTWARE ENGINEERING (Global)**

Upon completion of the course, the students will be able to

1. Decompose the given project in various phases of a lifecycle.
2. Perform various life cycle activities like Analysis, Design, Implementation, Testing and Maintenance.
3. Apply the knowledge, techniques, and skills in the development of a software product.

**Subject Code: 17I62**

**Course Name: DATA MINING AND WAREHOUSING (Global)**

Upon completion of the course, the students will be able to

1. Comprehend the functionality of the various data mining and data warehousing component.
2. Analyze the strengths and limitations of various data mining and data warehousing models.
3. Describe different methodologies used in data mining and data ware housing.

**Subject Code: 17I6P**

**Course Name: WEB TECHNOLOGY LAB (National)**

Upon completion of the course, the students will be able to

1. Acquire .NET Framework and describe some of the major enhancements to the new version of Visual Basic.
2. Describe the basic structure of a Visual Basic.NET project and use main features of the integrated development environment (IDE).
3. Create applications using web Forms using ASP.NET.

**Subject Code: 17IE6A**

**Course Name: MOBILE COMPUTING (National)**

Upon completion of the course, the students will be able to

1. Grasp the fundamentals of wireless communications.
2. Analyze security, energy efficiency, mobility, scalability, and their unique characteristics in wireless networks.
3. Apply knowledge of TCP/IP extensions for mobile and wireless networking.

**Subject Code: 17IE6B**

**Course Name: CLOUD COMPUTING (Global)**

Upon completion of the course, the students will be able to

1. Explain the core concepts of the cloud computing paradigm.
2. Apply the fundamental concepts in Cloud Services, Platforms and Application Design.
3. Analyze various cloud programming models and apply them to solve problems on the cloud.

**Subject Code: 17IPR6**

**Course Name: PROJECT (National)**

Upon completion of the course, the students will be able to

1. Demonstrate a sound technical knowledge of their selected project topic.
2. Undertake problem identification, formulation and solution.
3. Describe the knowledge, skills and attitudes of a software engineer.

**Subject Code: 17SEI61**

**Course Name: QUANTITATIVE APTITUDE (National)**

Upon completion of the course, the students will be able to

1. Draw conclusions or make decisions in quantitatively based situations that are dependent upon multiple factors.
2. The Quantitative Reasoning course is organized around big mathematical and statistical concepts.
3. Students will be expected to actively do Mathematics—such as analyzing data, constructing hypotheses, solving problems, reflecting on their work, and making connections.