

**DEPARTMENT OF
INFORMATION TECHNOLOGY
P.G.**

DEPARTMENT OF INFORMATION TECHNOLOGY

Programme Code: PI

Programme Name: M.Sc. Information Technology

Programme Outcomes

DEPARTMENT OF INFORMATION TECHNOLOGY-PG

1. Identify, design, and analyze complex computer systems and implement and interpret the results from those systems. (National)
2. Design, implement and evaluate a computer-based system, or process component, to meet the desired needs within the realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability. (National)
3. Review literature and indulge in research using research based knowledge and methods to design new experiments, analyze, and interpret data to draw valid conclusions. (Global)
4. Select and apply current techniques, skills, and tools necessary for computing practice and integrate IT-based solutions into the user environment effectively. (Global)
5. Apply contextual knowledge to assess professional, legal, health, social and cultural issues during profession practice. (National)
6. Analyze the local and global impact of computing on individuals, organizations, and society. (Global)

Programme Specific Outcomes

1. At the end of the programme, the student should be able to Understand the concepts and applications in the field of Information Technology like Web designing and development, Mobile application development, and Network and communication technologies. (Global)
2. Apply the learning from the courses and develop applications for real world problems. (National)
3. Understand the technological developments in the usage of modern design and development tools to analyze and design for a variety of applications. (National)
4. Competent and complete software professional to meet the requirement of corporate world and Industry standard to provide solutions to industry, society and business. (Global)
5. Analyst who can apply latest technologies who can analyze and synthesize computing systems through quantitative and qualitative techniques to solve problems in the areas of Information Technology. (National)
6. A thorough and practical expert in the use of state of the art techniques for developing Software based systems. (National)

Course Outcomes

SEMESTER - I

Subject Code: 17PI11

Course Name: COMPUTER ARCHITECTURE (National)

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

1. Apply the principles of number system, binary codes and Boolean algebra to minimize logic expressions.
2. Evaluate the different processor architectures and system-level design processes.
3. Grasp the principles of I/O in computer systems, including viable mechanisms for I/O and secondary storage organization.

Subject Code: 17PI12

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. Differentiate the static and dynamic binding.
3. Know the concept of inheritance, overloading, constructors and apply real world problems.

Subject Code: 17PI13

Course Name: DATA STRUCTURE AND ALGORITHMS (National)

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

1. Choose the appropriate data structure for modeling in the given problem.
2. Define high level of abstraction of various linear and nonlinear data structures.
3. Implement various data structures along with their application.

Subject Code: 17PIE1A

Course Name: DISCRETE MATHEMATICS (National)

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

1. Evaluate the foundation for the development of more advanced mathematical concepts.
2. Use appropriate set, function, or relation models for analysis of practical examples and interpretation of the associated operations and terminology in context.
3. Formulate problems precisely, solve the problems, apply formal proof techniques, and explain their reasoning clearly.

Subject Code: 17PIE1B

Course Name: SYSTEM ANALYSIS AND DESIGN (National)

1. Analyze the principles and tools of systems analysis and design.
2. Apprehend the professional and ethical responsibilities of practicing the computer professional including the need for quality.
3. Solve a wide range of problems related to the analysis, design and construction of information systems.

Subject Code: 17PIE1C

Course Name: DIGITAL IMAGE PROCESSING (Global)

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

1. Review the fundamental concepts of a digital image processing system.
2. Analyze images in the frequency domain using various transforms.
3. Evaluate the techniques for image enhancement and image restoration.

Subject Code: 17PI11P

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

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

1. Understand key features of the object-oriented programming language such as encapsulation (abstraction), inheritance, and polymorphism.
2. Design and implement object-oriented applications.
3. Analyze problems and implement simple C++ applications using an object-oriented programming approach.

Subject Code: 17PI12P

Course Name: DATA STRUCTURE AND ALGORITHMS LAB (National)

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

1. Apply wide knowledge of computing and mathematics to choose the data structures effectively and model the information in a problem.
2. Solve problems by using iterative and recursive methods.
3. Write various operations like searching, sorting, insertion, deletion, traversing etc. on different data structure.

SEMESTER - II

Subject Code: 17PI21

Course Name: RELATIONAL DATABASE MANAGEMENT SYSTEM (Global)

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

1. Awareness of database management basics and different models that we use for database.
2. Design and architecture of relational model, relational algebra and SQL queries.
3. Implement different form of normalization.

Subject Code: 17PI22

Course Name: THEORY OF COMPUTATION (National)

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

1. Understand and construct finite state machines and the equivalent regular expressions.
2. Prove the equivalence of languages described by finite state machines and regular expressions.
3. Construct pushdown automata and the equivalent context free grammars.

Subject Code: 17PI23

Course Name: SYSTEM SOFTWARE AND OPERATING SYSTEM (National)

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

1. Understand the different components of system software and intermediate code generation.
2. Identify and estimate process management & thread management strategies along with their different operations.
3. Implement different system calls for various file handling

Subject Code: 17PIE2A

Course Name: COMPILER DESIGN (Global)

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

1. Understand the major phases of Compilation and Syntax Analysis.
2. Construct the intermediate code representations and generation.
3. Separate the lexical, syntactic and semantic analysis into meaningful phases for a compiler to undertake language translation.

Subject Code: 17PIE2B

Course Name: RESOURCE MANAGEMENT TECHNIQUES (Global)

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

1. Make use of simplex method to solve optimization problems.
2. Demonstrate the concept of duality to solve Shortest route problem.
3. Evaluate the types of constraints and optimization methods.

Subject Code: 17PIE2C

Course Name: DATA MINING AND WAREHOUSING (National)

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

1. Implementation and use of the basic concepts and techniques of Data Mining.
2. Extract knowledge using data mining techniques and adapt new data mining tools.
3. Expand experience of doing independent study and research.

Subject Code: 17PI21P

Course Name: RDBMS LAB (National)

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

1. Understand the DDL commands, Primary key and Candidate keys.
2. Apply the various DML commands for retrieval of information.
3. Perform all the Table join operations.

Subject Code: 17PI22P

Course Name: DYNAMIC WEB PROGRAMMING LAB (Regional)

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

1. Create PHP programs that use various PHP library functions, and that manipulate files and directories.
2. Write PHP scripts to handle HTML forms.
3. Writing and executing SQL statements with PHP.

SEMESTER - III

Subject Code: 17PI31

Course Name: ADVANCED SOFTWARE ENGINEERING (Global)

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

1. Understand and adhere to professional ethical standards in the system development and modification process, especially by accepting responsibility for the consequences of design decisions and design implementations.
2. Design applicable solutions in one or more application domains using software engineering approaches that integrate ethical, social, legal and economic concerns.
3. Deliver quality software products by possessing the leadership skills as an individual or contributing to the team development.

Subject Code: 17PI32

Course Name: ADVANCED JAVA (Global)

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

1. Learn the Internet Programming, using Java Applets.
2. Apply event handling on AWT components including windows, menus, buttons, checkboxes, text fields and scrollbars.
3. Make a reusable software component, using Java Bean.

Subject Code: 17PIE3A

Course Name: COMPUTER NETWORKS (National)

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

1. Show clear understanding of the basic concepts of data communications including the key aspects of networking and their interrelationship, packet switching, circuit switching and cell switching as internal and external operations, physical structures, types, models, and internetworking.
2. Explain networking as it relates to the connection of computers, media, and devices (routing).
3. Demonstrate an understanding of the significance and purpose of protocols and standards and their key elements and use in data communications and networking.

Subject Code: 17PIE3B

Course Name: MOBILE COMPUTING (National)

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

1. Understand fundamentals of Mobile Computing Architecture and 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: 17PIE3C

Course Name: ARTIFICIAL INTELLIGENCE (Global)

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

1. Demonstrate the fundamental understanding of the history of artificial intelligence (AI) and its foundations.
2. Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.
3. Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, and other machine learning models.

Subject Code: 17PI12

Course Name: BIG DATA ANALYTICS (National)

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

1. Understand the key issues in big data management and its associated applications in intelligent business.
2. Acquire fundamental enabling techniques and scalable algorithms like Hadoop, Map Reduce and NO SQL in big data analytics.
3. Interpret business models and scientific computing paradigms, and apply software tools for big data analytics.

Subject Code: 17PIE3E

Course Name: CYBER SECURITY (National)

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

1. Analyze and evaluate the cyber security needs of an organization.
2. Evaluate how cyber security operations are carried out.
3. Determine and analyze software vulnerabilities and security solutions to reduce the risk of exploitation.

Subject Code: 17PIE3F

Course Name: PATTERN RECOGNITION (Regional)

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

1. Explain and compare a variety of pattern classification, structural pattern recognition, and pattern classifier combination techniques.
2. Apply pattern recognition techniques to real-world problems such as document analysis and recognition.
3. Implement simple pattern classifiers, classifier combinations, and structural pattern recognizers.

Subject Code: 17PI31P

Course Name: ADVANCED JAVA LAB (Global)

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

1. Apply the concepts of control structures, inheritance, method overriding in Java.
2. Implement the concept of interface, packages, multithreading and applets.
3. Learn the Java programming language in the aspects of designing, coding and implementation.

Subject Code: 17PI32P

Course Name: WEB TECHNOLOGY LAB (Global)

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

1. Understand the goals and objectives of the .NET Framework. .NET is a revolutionary concept on how software should be developed and deployed.
2. The working knowledge of the C# programming language.
3. Comprehend ADO.NET and develop database applications.

SEMESTER - IV

Subject Code: 17PIPR4

Course Name: PROJECT – VIVA VOCE (National)

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

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