DEPARTMENT OF INFORMATION TECHNOLOGY P.G.

DEPARTMENT OF INFORMATION TECHNOLOGY

Programme Code: OPI **Programme Name: M.Sc. Information Technology**

Programme Outcomes

1. Identify, design, and analyze complex computer systems and implement and interpret the results from those systems.
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.
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.
4. Select and apply current techniques, skills, and tools necessary for computing practice and integrate IT-based solutions into the user environment effectively.
5. Apply contextual knowledge to assess professional, legal, health, social and cultural issues during profession practice.
6. Analyze the local and global impact of computing on individuals, organizations, and society.

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.
2. Apply the learning from the courses and develop applications for real world problems.
3. Understand the technological developments in the usage of modern design and development tools to analyze and design for a variety of applications.
4. Competent and complete software professional to meet the requirement of corporate world and Industry standard to provide solutions to industry, society and business.
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.
6. A thorough and practical expert in the use of state of the art techniques for developing Software based systems.

Course Outcomes

Outcome Based Education(OBE)

SEMESTER - I

Subject Code: 21OPI11
Course Name: COMPUTER ARCHITECTURE

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

1. Understand the principles of number system, binary codes and Boolean algebra to minimize logic expressions.
2. Describe concepts of Hardwired control and micro programmed control.
3. Identify various design alternatives in processor organization.
4. Implement the principles of I/O in computer systems, including viable mechanisms for I/O and secondary storage organization.
5. Illustrate the I/O and memory organization.

Subject Code: 21OPI12
Course Name: OBJECT ORIENTED PROGRAMMING WITH C++

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

1. Understand the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
2. Identify the dynamic memory management techniques using constructors, destructors, etc
3. Describe the concept of operator overloading and polymorphism.
4. Discuss on Pointers and virtual functions.
5. Implement the concept of Files and Templates.

Subject Code: 21OPI13
Course Name: DATA STRUCTURE AND ALGORITHMS

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

1. Understand the uses of data abstraction and linear data structures.
2. Describe high level of abstraction of various linear and nonlinear data structures.
3. Sketch the significance of trees and binary search trees.
4. Illustrate various data structure of graphs and technique for hashing Level. (Understand) Illustrate various data structure of graphs and technique for hashing Level.
5. Understand and implement various data structures along with their application of Binary Search Trees and AVL trees.

Subject Code: 21OPIE1A
Course Name: DISCRETE MATHEMATICS

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

1. Show appropriate set, function, or relation models for analysis of practical examples and interpretation of the associated operations and terminology in context.
2. Indicate the recurrence relations and generating functions.
3. Apply the concept of Coding Theory.
4. Solve the problems using Logic.
5. Apply formal proof techniques, and explain their reasoning clearly with Lattices and Graph Theory.

Subject Code: 21OPIE1B
Course Name: SYSTEM ANALYSIS AND DESIGN

1. Understand the system design & element System life cycle
2. Describe about Analyst & MIS Organization the Bases for planning
3. Identify the Feasibility Study – Data Analysis – Cost/Benefit Analysis.
4. Implement the Forms Design – File Organization and Data Base Design.
5. Illustrate the Hardware/Software Selection – Financial considerations in selection.

Subject Code: 21OPI11P
Course Name: C++ AND DATA STRUCTURE LAB

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

1. Understand the procedural and object oriented paradigm with concepts of class & objects, functions and constructors.
2. Identify the method to implement the various Inheritance types.
3. Describe the concept of operator overloading, polymorphism and virtual functions.
4. Gain knowledge of data structure like Stack and Queue which can be applied to solve problems.
5. Describe the nonlinear data structure like List, trees and sorting techniques.

Subject Code: 21OPI12P
Course Name: PHP PROGRAMMING LAB

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

1. Write PHP scripts using control statements.
2. Create PHP programs that perform operation on arrays and use various PHP Library function.
3. Develop PHP programs by applying various object oriented concepts.
4. Analyze and solve common web application tasks use form controls with validation.
5. Analyze and solve various database tasks using the PHP.

Subject Code: 21OPINM1
Course Name: PHOTO DESIGNING

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

1. Understand the Principles of Photoshop.
2. Describe the concept of Editing and Retouching.
3. Analyze the Painting Tools, Brushes, Drawing-Eraser Tool and Pen Tools.
4. Implement the concept of create layer and r own Custom shapes.
5. Applying the text tool and wrap text.

SEMESTER - II

Subject Code: 21OPI21
Course Name: OPERATING SYSTEM CONCEPTS

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

1. Identify the role of Operating System and understand the design of control unit.
2. Understanding CPU Scheduling, Synchronization.
3. Identify Deadlock Handling and Solve Deadlock Detection Problems.
4. Describe the role of paging, segmentation and virtual memory in operating systems.
5. Illustrate the file system interface.

Subject Code: 21OPI22
Course Name: DIGITAL IMAGE PROCESSING

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

1. Understand the basic concepts of digital image fundamentals.
2. Describe concepts of Image Transformation & Filters.
3. Identify various design alternatives in image restoration and Segmentation techniques.
4. Implement the principles of Color Image Processing.
5. Illustrate the Morphological Image Processing Techniques.

Subject Code: 21OPI23
Course Name: DATA COMMUNICATIONS AND NETWORKING

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

1. Describe the functions of each layer in OSI and TCP/IP model.

2. Differentiate various Switching techniques and apply the concept of different Error Detection and Correction methods.
3. Discuss the design principles of wired and wireless communication media.
4. Understand the various Transport layer protocols and also differentiate IPV4 and IPV6 Protocols.
5. Discuss and Explain current network authentication applications, network security and their Vulnerabilities that are exploited by intentional and unintentional attacks.

Subject Code: 21OPIE2A

Course Name: ANDROID PROGRAMMING

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

1. Develop various Android applications related to layouts and pass information between multiple activities.
2. Describe how to design simple GUI applications, use built-in widgets and components.
3. Discuss the usage of fragments in android platform. Design and develop user interfaces for the Android platform.
4. Design Android applications which make use of internal storage.
5. Rate the importance of animation techniques and graphics with simple graphical objects on a display screen.

Subject Code: 21OPIE2B

Course Name: THEORY OF COMPUTATION

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

1. To use basic concepts of formal languages of finite automata Techniques.
2. Understand and construct finite state machines and the equivalent regular expressions.
3. To Construct context free grammar for various languages.
4. Synthesizes Context Free Grammar with specific properties.
5. Construct model of Turing machine and the comparison of Finite Machine with Turing Machine.

Subject Code: 21OPI21P

Course Name: UNIX AND LINUX PROGRAMMING LAB

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

1. Understanding the basic set of commands and utilities in Linux/UNIX systems.
2. To learn the important Linux/UNIX library functions and system calls
3. Develop UNIX programs Using Function and AWK.
4. Analyze Various File and Directory Handling Commands in LINUX Programming.
5. Analyze System Variables Path, Home.

Subject Code: 21OPI22P
Course Name: DIGITAL IMAGE PROCESSING LAB

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

1. Understand program for extract image attributes and image. Negation.
2. Interpret and analyze graphical representation through image transforms.
3. Apply image and video processing for various image smoothening applications.
4. Design for Morphological Operation on binary image and pseudo coloring.
5. Develop various compression techniques on digital images.

Subject Code: 21OPINM2
Course Name: TECHNOLOGIES OF INTERNET

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

1. Describe the concept of Network Definition, Network Administrator, Network Security and Network Topologies.
2. Discuss the concepts of Browsers and Search Engines.
3. Describe on E-mail Networks and Servers, E-mail Protocols, Structure of E-mail, Attachments, E-mail Clients, web-based E- mail-Address book, Signature File.
4. Elaborate the concept of Computer Security and Computer Crimes.
5. Discuss the concept of Computer Viruses, Bombs and Worms.

Non-Outcome Based Education

SEMESTER - III

Subject Code: 17PI31
Course Name: ADVANCED SOFTWARE ENGINEERING

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

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 resusable software component, using Java Bean.

Subject Code: 17PIE3A
Course Name: COMPUTER NETWORKS

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

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

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

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

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

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

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

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

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.