B.TECH PROGRAM

B. TECH (CSE) - PROGRAM EDUCATIONAL OBJECTIVES (PEO's)	
A graduate of the Computer Science and Engineering Program should:	
PEO -I	*Students will establish themselves as effective professionals by solving real problems through the use of computer science knowledge and with attention to team work, effective communication, critical thinking and problem solving skills.*
PEO -II	*Students will develop professional skills that prepare them for immediate employment and for life-long learning in advanced areas of computer science and related fields.*
PEO - III	*Students will demonstrate their ability to adapt to a rapidly changing environment by having learned and applied new skills and new technologies.*
PEO - IV	*Students will be provided with an educational foundation that prepares them for excellence, leadership roles along diverse career paths with encouragement to professional ethics and active participation needed for a successful career.*

B. TECH (CSE) - PROGRAM OUTCOMES (PO's)	
A graduate of the Computer Science and Engineering Program will demonstrate:	
PO1:	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2:	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3:	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4:	**Conduct investigations of complex problems**: Use research-based knowledge and

	research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5:	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6:	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7:	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8:	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9:	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10:	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11:	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12:	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

B. TECH (CSE) - PROGRAM SPECIFIC OUTCOMES (PSO's)	
A graduate of the Computer Science and Engineering Program will demonstrate:	
PSO1:	Understand, design and analyze computer programs in the areas related to Algorithms, System Software, Web design, Big data, Artificial Intelligence, Machine Learning and Networking.
PSO2:	Focus on improving software reliability, network security or information retrieval systems.
PSO3:	Make use of modern computer tools for creating innovative career paths, to be an entrepreneur and desire for higher studies.

Data structures

Course Objectives:

1. To provide the knowledge of basic data structures and their importance of structuring the data for easy access and storage.
2. To teach the implementation of various data structures and understanding the context of writing efficient programs.
3. To develop skills to apply appropriate data structures in problem solving.
4. To acquire skills in using generic principles for data representation and manipulation with a view for efficiency, maintainability and code reuse.

After completing this course, the student will be able to:

1. Learn the basic types of data structures, implementation and application.
2. Know the strength and weakness of different data structures.
3. Use the appropriate data structure in context of solution of given problem.
4. Develop programming skills which require to solve given problem.

Data structures Lab

Course Objectives:

1. It covers various concepts of C programming language
2. It provides an understanding of data structures such as stacks and queues.
3. It introduces searching and sorting algorithms.

Course Outcomes:

1: Explaining the linear data structures such as List, Stack, Queue and its applications

2: Implement non-linear data structure such as Trees, Graphs and its applications

3: Apply suitable algorithms for Searching and Sorting Techniques

Programming for problem solving

Course Objectives:

1. To introduce the basic concepts of Computing environment, algorithms and flowcharts
2. To familiarize the basic constructs of C language – data types, operators and expressions
3. To prepare the students to write modular and readable C Programs.
4. To learn the usage of structured data types and Dynamic memory management using pointers.
5. To create, read from and write to text and binary files.
6. Aims to train the students to write working programs to solve problems

Course Outcomes:

The students will able to

1. Formulate simple algorithms for arithmetic and logical problems.
2. Translate the algorithms to programs (in c language).
3. Learning of sequencing, branching, looping and decision making statements to solve scientific and engineering problems.
4. Represent and manipulate data with arrays, strings and structures.
5. To decompose a problem into functions and to develop modular reusable code.
6. Ability to design and implement different types of file structures using standard methodology.

Programming for problem solving Lab

Course Objectives:

The students will learn the following:

1. To work with an IDE to create, edit, compile, run and debug programs
2. To analyze the various steps in program development.
3. To develop programs to solve basic problems by understanding basic concepts in C

Like operators, control statements etc.

4. To develop modular, reusable and readable C Programs using the concepts like Functions, arrays etc.
5. To Write programs using the Dynamic Memory Allocation concept.
6. To create, read from and write to text and binary files

Course Outcomes:

After completing the course the candidate is expected to be able to:

1. formulate the algorithms for simple problems
2. translate given algorithms to a working and correct program
3. correct syntax errors as reported by the compilers
4. identify and correct logical errors encountered during execution
5. represent and manipulate data with arrays, strings and structures
6. use pointers of different types

7.create, read and write to and from simple text and binary files

8.modularize the code with functions so that they can be reused

Physics

Program Outcomes (PO)

PO1 To create, apply, and disseminate knowledge of physics in theoretical and experimental domains under different subjects.

PO2 To develop the ability to identify, formulate, analyze and solve problems in in theoretical and experimental domains of physics at both curricular and research level through critical thinking.

PO3 To enable students to apply ICT based skills and making them scientific software literate to use in academics.

PO4 To encourage research culture, provide research ambience and develop relatedtechnical proficiency.

PO5 To develop attitude to pursue further research and finding placement avenues throughit.

PO6 To inculcate academic and social ethical values among the students.

Program Specific Outcomes (PSO)

PSO1 Student are able to apply the knowledge of core concepts of physics in semester exams, in GATE, national level exams as well as in the research level projects work which is suitable to communicate/present further in workshops and conferences

PSO2 Through assignments, GATE coaching workshops and research based project work in both theoretical and experimental domains, students are able to revel analytical skills and critical thinking

PSO3 In day today access to study material, through presentations, students are capable enough to make use of PowerPoint presentations, Moodle (LMS), Web-based academic links and can also get hands on experience of using proprietary software like Matlab, Mathematica under experiential learning.

PSO4 Through the research cultural and skills acquired there in, students are capable of sustaining subsequent academic progression inside the country and overseas as well

Course Outcomes

Part-I Semester-I

BSC101 Scalars and Vectors

1. Students are able to understand fundamental concept and formalism of Scalars and Vectors.

2. Students are able to understand and solve the problems in Newton's Laws with some examples.

BSC101 Potential Energy Function, Simple Harmonic Motion

1. Students can get knowledge of Potential energy function , Gradient, Cnetrals forces and energy equation and energy diagrams.
2. Students are able to get practical application. Example: Satellite manocurves.
3. Students will gain knowledge on Simple Harmonic Motion, damped and over-damped motions.

BSC101 Rigid Body

1. Students are able to understand Rgid Body motion, Co-ordinating systems, Angular momentum concept.
2. Students can get Knowledge of Euler's Laws of Motion –Solving problems using it.

BSC101 Electrostatics in Vacuum, Mgneto statics

1. Students are able to understand electric field and electrostatic potential concepts, Laplace's and Poisson's equations for electrostatic potentials and their solution.
2. Students can learn Boundary conditions of electric field and electrostatic potential.
3. Students can gain knowledge of Bio-Savart Law, Stroke's theorem and its applications.

BSC101 FARADAY'S LAWS

1. Students are able to understand Faraday's Laws and Len's Law its importance.

BSC101 Lab 1-Applied Physics

1. Students are able to understand experimental knowledge on Coupled oscillators, LC,RC and LCR Circuits, Gyroscope experiment and moment of intertia while doing they can gain experimental knowledge.

ESC 301 Analog Electronics

Course Objectives:

- To analyze the behavior of semiconductor diodes in Forward and Reverse bias
- To design of Half wave and Full wave rectifiers with L, C, LC & CLC Filters

- To explore V-I characteristics of Bipolar Junction Transistor in CB, CE & CC configurations
- To explain feedback concept and different oscillators
- To analyze the applications of different analog integrated circuits

Course Outcomes: Students will be

1. Able to learn about forward biased and reversed biased circuits
2. Able to plot the V-I Characteristics of diode, BJT and FET
3. Able to know the behavior of feedback amplifiers and oscillators
4. Able to explore the applications of op-amp and 555 timers

B. Tech. (CSE/IT) III SEMESTER

ESC – 301L Analog Electronics Laboratory

Course Objectives:

- To understand the diode characteristics
- To study the input and out characteristics of different Transistor configurations
- To understand the design concepts of amplifier and Oscillator circuits
- To understand the design concepts of feedback amplifiers
- To understand the applications of op-amp and timer

Course Outcomes: Students will be

1. Able to design diode circuits
2. Able to understand the applications of Zener diode
3. Able to understand the operation of HWR & FWR circuits with & without filters
4. Able to analyze the characteristics of BJTs and FETs
5. Able to analyze the performance of operation amplifier
6. Able to operate laboratory equipment and analyze the results

B. Tech. (CSE/IT) IV SEMESTER

ESC-401 Digital Electronics

Course Objectives:

- To learn basic techniques for the design of digital circuits
- To understand common forms of number representation in digital electronic circuits

- To implement simple logical operations using combinational logic circuits and design of sequential logic circuits.
- To implement synchronous state machines using flip-flops.
- To understand the basic functionality of digital logic families

Course Outcomes: Students will be

1. Be able to manipulate numeric information in different forms of digital representations
2. Be able to manipulate simple Boolean expressions using the theorems and postulates of Boolean algebra and to minimize combinational functions.
3. Be able to design and analyze small sequential circuits and devices
4. Be able to analyze the behavior of digital logic families

B. Tech. (CSE) V SEMESTER

PRINCIPLES OF SIGNALS AND SYSTEMS (ES3106CS)

Course Objectives:

- To explain signals and systems representations/classifications and also describe thetime and frequency domain analysis of continuous time signals with Fourier series,Fourier transforms and Laplace transforms.
- To understand Sampling theorem, with time and frequency domain analysis ofdiscrete time signals with DTFS, DTFT and Z-Transform.
- To present the concepts of convolution and correlation integrals and also understandthe properties in the context of signals/systems and lay down the foundation foradvanced courses.

Course Outcomes: Students will be able to

1. Apply the knowledge of linear algebra topics like vector space, basis, dimension,inner product, norm and orthogonal basis to signals.
2. Analyse the spectral characteristics of continuous-time periodic and a periodic signalsusing Fourier analysis
3. Understand the process of sampling and the effects of under sampling. Classifysystems based on their properties and determine the response of LSI system usingconvolution.

4. Analyze system properties based on impulse response and Fourier analysis. Apply theLaplace transform and Z- transform for analyze of continuous-time and discrete-timesignals and systems.

B. Tech. (CSE) VI SEMESTER OPEN ELECTIVE-I
MICROPROCESSORS AND INTERFACING (OE3213EC)

Course Objectives:

- To understand the microprocessor architecture with the help of 8086.
- To study the block diagram and peripheral ICs of microprocessor.
- To understand and differentiate between a microprocessor and a microcontroller.
- To study the need for interfacing and its applications

Course Outcomes: Students will be able to

1. Able to acquire an overview of what a processor and controller are and differentiatebetween them
2. Able to understand the architecture of a microprocessor and to enableto design applications using them
3. Able to do the basic and advanced programming using 8086 microprocessor
4. Able to analyze the need for interfacing and its applications

B. Tech. (CSE) VIII SEMESTER Open Elective – II
VLSI DESIGN (OE4208EC)

Course Objectives:

- To provide a perspective on Digital Design in the Deep Sub-micron Technology.
- To focus on CMOS and Bi CMOS Short-channel Transistor Models.
- To Study CMOS Inverter elaborately.
- To explore static and dynamic implementations of combinational and sequentialcircuit designs and introduce Testability of VLSI circuits.

Course Outcomes: At the end of this course, students will be able to:

1. Have an understanding of the Fabrication processes and the comparison betweendifferent state-of-the-art CMOS technologies.
2. Acquire the knowledge in understanding CMOS Inverter characteristics. Illustratecircuit diagrams, stick diagrams and layouts.
3. Design and analyze various Combinational Logic circuits in different models.
4. Design and analyze various Arithmetic Blocks and Memory structures.

B. Tech. (CSE) VIII SEMESTER Open Elective – II

BASICS OF IoT (OE4206EC)

Course Objectives:

- To introduce the concepts of automation in daily life.
- To familiarize the concepts of all IoT based communication systems.
- To understand the importance of cloud technologies in the field of IoT.
- To get familiar with standard embedded boards like Raspberry Pi.
- To study a real time system with a view of an application program interface (API).

Course Outcomes: Student will be

1. Able to design IoT based solutions for given problem statements
2. Able to develop programs for Raspberry Pi
3. Able to demonstrate the functionality of cloud communication
4. Able to analyze the technologies used in IoT
5. Able to incorporate multiple sensors to develop an IoT based system

BASIC ELECTRICAL ENGINEERING

Course Objectives:

- To introduce the basic concepts of electrical engineering.
- To teach students the concepts of KCL, KVL, Mesh, and Nodal Analysis.
- To teach students the generation of 1-ϕ AC voltages and the differences between AC and DC Supplies.

- To teach students the basic construction and operating principles of measuring instruments.
- To introduce the concepts of 3-ϕ AC voltages and the relations between line and phase quantities for star, delta connections.
- To teach the basic operating principles of AC and DC Motors/Generators, their related equations, Characteristics and Applications.
- To introduce the construction and operating principles of a transformer and developing the phasor diagrams when the transformer is subjected to no-load and on-load.

Course Outcomes:

- The students will be able to calculate the currents and voltage drops in any element with the help of mesh analysis, nodal analysis and circuit theorems.
- It's easy for the students to differentiate between AC and DC quantities.
- The students will be able to calculate 3-ϕ currents and voltages for a given star/delta connected network.
- It will help them to understand the basic working principles of AC and DC motors/generators.
- The students will be able to understand the working principles of transformer.
- It will help them to draw the equivalent circuit of the transformer when the parameters are referred to primary/secondary winding.
- The students will be able to know the importance of AC and DC motors/generators with reference to the industrial applications.

BASIC ELECTRICAL ENGINEERING LAB

Course Objectives:

- To introduce the basic practical applications of KCL, KVL, Mesh, and Nodal Analysis electrical
- engineering.
- To inculcate the practical applications of Electrical Theorems.
- To bring the practical awareness about the generation of AC and DC Voltages, applications of AC and DC motors.

- To introduce the importance of Electrical transformers in real time applications.

Course Outcomes:

- The students will be able to practically get awareness about the basic importance and usage of Electrical energy and threats in electrical system.

MC 210 Environmental Sciences

Course Objectives

- Overall understanding of the natural resources.
- Basic understanding of the ecosystem and its diversity.
- Acquaintance on various environmental challenges induced due to unplanned anthropogenic activities.
- An understanding of the environmental impact of developmental activities.
- Awareness on the social issues, environmental legislation and global treaties.

Course Outcomes:

- Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn help in sustainable development.

Course: Data base Management Systems

Course Objectives

- To know the impotence and evolution of Data base Management.
- To introduce various Data models and how they will be used in implementing data base management systems.
- To get knowledge of commercial query languages to interact DBMS
- To Study data organization at physical storage level.
- To familiarize with theoretical concepts Transaction processing, concurrency control and recovery.

Course Outcomes:

After completing this course, the student will be able to:

1. Represent the data of specific application using various Data models

2. Convert the data base represented at logical level to implementation level
3. Write queries to retrieve specific information from Data base.
4. Select the appropriate file organization technique for given Data Base application.
5. Explore the concepts of concurrency control and recovery mechanisms in RDBMS

Course: Data base Management Systems Lab

Course Objectives:

- To practice various types commands in SQL.
- To write simple and complex queries in SQL.
- To write PL/SQL scripts.

Course Outcomes:

After the completion of the course, the student will be able to:

1. Design and implement a database schema for a given problem.
2. Implement various types of constraints.
3. Write and execute Queries using SQL.
4. Create stored procedures, triggers, cursers.
5. Write PL/SQL Scripts.

Course: Artificial Intelligence

Course Objectives:

- Understand the importance of the field of AI by discussing its history and various Application domains of AI.
- Knowing types of search strategies used in AI and representing problems in state space search.
- Learning some standard search strategies and Understanding methods to represent knowledge.
- Learning how to perform reasoning based on the available knowledge of the problem.
- Knowing the concepts of game playing, planning and NLP.

Course Outcomes:

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

1. Analyze and represent the problem suitable for specific search method.
2. Selects suitable search strategy in order to solve given problem.
3. Represents the knowledge available in the problem in various forms.
4. Answers the question related to problem using reasoning.

Identify explore further scope of AI in gaming and NLP applications

Course: Python Programming

Course Objectives

- To learn handling of variables and performing arithmetic, logical and relational operations.
- To learn control structures and developing user defined functions.
- Understanding how to handle the various data structures like List, Tuple, Set and Dictionaries.
- To learn how to handle strings, files and develop modules.
- To learn Object oriented and GUI features of Python.

Course Outcomes

After completing this course, the student will be able to:

1. Handle different Data types and operation on them.
2. Apply the control structures and function whenever required in programs.
3. Use various data structures like List, Tuple, Set and Dictionaries at appropriate place.
4. Develop application requires file handling.
5. Develop GUI applications and use the object oriented features.

Course: Python Programming Lb

Course Objectives

- To learn writing simple programs involves usage of different data types and its operations.
- To learn writing programs required to use control structures and function.

- To learn writing programs using all types' data structures.
- To learn implementing object oriented features and developing simple GUI applications.

Course Outcomes:

After completing this course, the student will be able to:

- Develop programs handling verity of data types.
- Develop application involving searching, sorting and ranking of different data.
- Develop application involving file processing.
- Develop simple GUI Interfaces.

Machine Learning

Course Objectives:

- This course explains machine learning techniques such as decision tree learning, Bayesian learning etc.
- To understand computational learning theory.
- To study the pattern comparison techniques.

Course Outcomes:

- Understand the concepts of computational intelligence like machine learning
- Ability to get the skill to apply machine learning techniques to address the real time problems in different areas
- Understand the Neural Networks and its usage in machine learning application.

Data Science

Course Objectives:

1. Learn concepts, techniques and tools they need to deal with various facets of data science practice, including data collection and integration
2. Understand the basic types of data and basic statistics
3. Identify the importance of data reduction and data visualization techniques

Course Outcomes: After completion of the course, the student should be able to

1. Understand basic terms what Statistical Inference means.
2. Identify probability distributions commonly used as foundations for statistical modelling. Fit a model to data
3. describe the data using various statistical measures
4. utilize R elements for data handling
5. perform data reduction and apply visualization techniques.

Computer Architecture & Organization

Course Objectives

- The purpose of the course is to introduce principles of computer organization and the basic architectural concepts.
- It begins with basic organization, design, and programming of a simple digital computer and introduces simple register transfer language to specify various computer operations.
- Topics include computer arithmetic, instruction set design, microprogrammed control unit, pipelining and vector processing, memory organization and I/O systems, and multiprocessors

Course Outcomes

- Understand the basics of instruction sets and their impact on processor design.
- Demonstrate an understanding of the design of the functional units of a digital computer system.
- Evaluate cost performance and design trade-offs in designing and constructing a computer processor including memory.
- Design a pipeline for consistent execution of instructions with minimum hazards.
- Recognize and manipulate representations of numbers stored in digital computers

Pattern Recognition

Prerequisites

Students are expected to have knowledge basic linear algebra, basic probability theory and basic programming techniques;

A course on “Computational Mathematics”

A course on “Computer Oriented Statistical Methods”

Course Objectives

- This course introduces fundamental concepts, theories, and algorithms for pattern recognition and machine learning.
- Topics include: Pattern Representation, Nearest Neighbor Based Classifier, Bayes Classifier, Hidden Markov Models, Decision Trees, Support Vector Machines, Clustering, and an application of hand-written digit recognition.

Course Outcomes

- Understand the theory, benefits, inadequacies and possible applications of various machine learning and pattern recognition algorithms
- Identify and employ suitable machine learning techniques in classification, pattern recognition, clustering and decision problems.

COMPILER DESIGN

COS

This course will develop students ‘knowledge in/on…

1. Phases of a compiler and design of a lexical analyser.
2. Parsing techniques using context-free grammar and construction of syntax tree .
3. Specification of a type checker, storage allocation strategies and generating intermediate form for programming statements.
4. generating target code from the intermediate form and applying code optimization techniques.

Upon completion of this course, students will be able to…

1. Design lexical analyzer using regular expressions to generate tokens from the given programming statements .

2. Construct syntax tree and parsing table for the given context-free grammar.
3. Generate intermediate code for the given programming statements.
4. Generate target code from the intermediate form and apply code optimization techniques to improve the performance of the code.

THEORY OF COMPUTATION

COS

1. This course will develop students‘ knowledge in/on…
2. Construction of finite state machines and the equivalent regular expressions
3. Identifying the given language is regular or not
4. Designing pushdown automata and the equivalent context free grammars
5. Designing Turing machines

POS

1. Upon completion of this course, students will be able to…
2. The Students will be able to design finite state automata, regular grammar, regular expression &representations for regular languages.
3. The Students will be able to classify formal languages into regular, context-free, context sensitive and unrestricted language
4. The Students will be able to design push-down automata and context-free grammar representations for context-free languages.
5. The Students will be able to design Turing Machines for accepting recursively enumerable languages.
6. The Students will be able to understand the notions of decidability and undecidability of problems, Halting problem.

SOFT COMPUTING

COS

1. This course will develop students ‘knowledge in/on…
2. Key aspects of soft computing and Genetic algorithm
3. Fuzzy logic components

4. Neural networks and its applications
5. Hybrid systems

POS

1. Upon completion of this course, students will be able to…
2. Outline the concepts of soft computing and apply Genetic algorithms
3. Evaluate the Fuzzy systems
4. Analyse the neural network algorithms
5. Evaluate the hybrid systems

Advanced Java

- Develop reusable component for Graphical User Interface applications using Swings.
- Demonstrate the concept of Collections, Comparators, Legacy classes and Interfaces
- Apply the concepts of JDBC, Transaction processing, statement objects and Resultset to perform operations on Database
- Apply the concepts of server side technologies for dynamic web applications
- Develop web application using Servlets
- Develop web application using JSP

POS:

- create a full set of UI widgets and other components, including windows, menus, buttons, checkboxes, text fields, scrollbars and scrolling lists, using Abstract Windowing Toolkit (AWT) & Swings
- Strongly mapped as students able to gain the knowledge of Collections, Comparators, Legacy classes and interfaces for data handling in java.
- Strongly mapped as students gain the knowledge in developing the applications using Database concepts
- Strongly mapped as students able to identify the problem statements and develop application using JDBC to connect backend of the database
- Strongly mapped as students gain the knowledge in developing the applications using Servlets and JSP.
- Strongly mapped as students able to identify the problem statements and use Servlets / JSP to build applications.

DESIGN AND ANALYSIS OF ALGORITHMS

LO1: time and space complexity, asymptotic notations, set operations, problem solving with divide and conquer strategy , Searching and sorting techniques using divide and conquer strategy

LO2: backtracking methods to solve computational problems

LO3: principle of optimality and problem solving with dynamic programming method

LO4: greedy to solve computational problems

LO5: Computational problem using dynamic programming and branch and bounds method

POS1

An Algorithm is a sequence of steps to solve a problem. Design and Analysis of Algorithm is very important for designing algorithm to solve different types of problems in the branch of computer science and information technology.

Web Programming (Theory)

CO1: Designing Static webpage Using HTML Tags.CSS Properties

CO2: Designing Dynamic web pages ,Client-Side validations using JavaScript

CO3: Implement AJAX functionality for interactive web application

CO4: Developing application using Client-Side and Server-Side Applications using AJAX and PHP,Mysql

CO5: Building database applications using ASP

PO1:transform various legacy or manual systems into computer automated systems using Modern Programming Languages, Integrated Development Environments, and apply Testing Tools for efficient verification and validation of those software systems.

PO2:demonstrate knowledge in fixing and updating multidisciplinary software problems working in real time environment.

PO3work as a software practitioner or continue higher education by adopting advanced technologies in various fields of IT sector

Po4: create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations

Computer Architecture and Organization

This course will develop students' knowledge in/on

PO1: Basic structure of a computer, principle components and instruction set architecture.

PO2: Working of processing unit and computation of arithmetic operations.

PO3: Various types of memories and data transfer among memory, processor & I/O.

PO4: Architecture and operation of high performance computing systems.

Po5: Pipelining, parallelism and shared variables.

Course Code: Course Name: Computer Architecture And Organization

CO Upon completion of this course, the student will be able to…

CO1 Identify functional units of a computer, 2's complement representation and various number systems arithmetic operations.

CO2 Write control sequence for execution of an instruction, Explain addressing modes and instruction formats.

CO3 Design memory organization and explain data transfer among memory, processor & I/O.

CO4 Analyze different modes of data transfer and explain the concepts of Input/Output devices and parallel processing.

CO5 Describes pipelining for high performance computing systems. Explains Interconnection Networks.

Object Oriented Programming through Java

This course will develop students' knowledge in/on…

PO1: The basic concepts of programming paradigms and java programming.

PO2: Concepts of classes, methods and strings.

PO3: Types of inheritance, interfaces.

PO4: Concepts of packages, streams (I/O), exceptional handling and multithreading.

PO5: Applet Programming and Swings

CO	Upon completion of this course, the student will be able to…
CO1	Distinguish various programming paradigms and implement java fundamental programs.
CO2	Implement classes, constructors, and strings.
CO3	Apply reusability concepts like inheritance, dynamic method dispatch, and interfaces.
CO4	Implement packages, apply streams (I/O), exception handling, and multithreading.
CO4	Implement Applets, AWT and Swings.

Object Oriented Programming through Java Lab

This course will develop students' knowledge in/on…

PO1: The basic concepts of java programming and difference from procedural programming approach to object oriented programming approach.

PO2: building fundamental java programs related to classes, methods and strings.

PO3: designing java programs effectively with the help of inheritance and interfaces concepts.

PO4: packages, I/O, exceptional handling and multithread programming using java.

Po5: Applet programming and AWT.

CO	Upon completion of this course, the student will be able to…
CO1	Distinguish various programming paradigms and implement java fundamental programs.
CO2	Implement classes, constructors, and strings.
CO3	Construct reusability concepts like inheritance, dynamic method dispatch, and interfaces.
CO4	Implement packages, apply streams (I/O), exception handling, and multithreading.
CO4	Develop web based applications using Applets, AWT and Swings.

Data Structures Using "C"

This course will develop students' knowledge in/on

PO1: Understand the concept of Dynamic memory management, data types, algorithms, asymptotic notations.

PO2: Understand basic data structures such as arrays, linked lists.

PO3: Describe Stack, queues and their applications.

PO4: Solve problem involving graphs and trees.

PO5: Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data.

CO Upon completion of this course, the student will be able to…

CO1 Identify various types of Data Structures, Dynamic memory allocation and asymptotic notations.

CO2 Write sequence of data using single linked lists, double linked lists and circular linked lists.

CO3 Design memory organization using Stack, Queue and their applications.

CO4 Analyze tree traversal techniques, DFS and BFS.

CO5 Describes searching techniques and analyze various types of sortings.

Data Structures Lab

This course will develop students' knowledge in/on

PO1: Understand the concept of Dynamic memory management, data types, algorithms, asymptotic notations.

PO2: Understand basic data structures such as arrays, linked lists.

PO3: Describe Stack, queues and their applications.

PO4: Solve problem involving graphs and trees.

PO5: Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data.

CO Upon completion of this course, the student will be able to…

CO1 Implement array operations and its application sparse matrix transpose and addition.

CO2 Write sequence of data using single linked lists, double linked lists and circular linked lists.

CO3 Design programs using Stack, Queue, conversion of infix expression to post/prefix and evaluation of postfix expression.

CO4 Implement tree traversal techniques, DFS and BFS.

CO5 Develop Linear and Binary search techniques, Bubble sort, selection sort, Insertion sort, Quick sort and Merge sort.

IT WORKSHOP LAB

This course will develop students' knowledge in/on

PO1: To impact the knowledge of various hardware components of a computer.

PO2: To provide the skill of assembling the computer.

PO3: Impact the knowledge and usage of various Microsoft tools such as Power Point, Word and Excel.

PO4: Developing latest RESUME.

PO5: Students would be exposed to the various threats on internet and would be asked to configure their computer to be safe on the internet.

CO Upon completion of this course, the student will be able to…

CO1 Identify the components of a computer, components in a CPU and its functions.

CO2 Work with MS-DOS command prompt and basic DOS commands

CO3 Customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and popup blockers.

CO4 Familiar with Microsoft word and different templates of it for design a RESUME.

CO5 Work on basic power point utilities and tools which help them create a basic power point presentation.