DATA STRUCTURES

Course Outcomes: After completion of course, students will be able to
CO 1 : Understand Object oriented constructs of pyon.
CO 2 : Implement data structures like stacks, queues and linked lists.
CO 3 : Understand Tree Data Structures, Search Trees and implement them.
CO 4 : Understand Maps, Hash Tables, Sorted Maps and implement them.
CO 5 : Implement Priority Queues, Heap Data Structure, Heap Sort and other sorting techniques

DISCRETE STRUCTURES & GRAPH THEORY

(Common to CSE and CSIT)

Course Outcomes:
CO1 : Apply formal logic proofs and/or informal, but rigorous, logical reasoning to evolve theoretical proofs to real problems, such as predicting the behavior of software or solving problems such as puzzles.
CO2 : Apply the logical notations to define and reason about fundamental mathematical concepts such as sets, relations, functions, and integers.
CO3 : Understand and appreciate simple proofs of problems result in group theory.
CO4: Apply the concept of permutations and combinations to problem solving.
CO5: Demonstrate knowledge of fundamental concepts in graph theory.

DIGITAL LOGIC DESIGN

Course Outcomes: At the end of the course, the student will be able to
CO 1 : Understand and master different number systems and realize the binary operations of Boolean algebra using logic gates.
CO 2 : Solve gate-level minimization problems using K-map and Quine-McCluskey methods.
CO 3 : Analyze a given combinational circuit and design a new optimized circuit for a given specification.
CO 4 : Analyze a given sequential circuit and design an optimal circuit to implement a memory element or a counter.
CO 5 : Realize Programmable logic elements used in the design of processors and embedded systems.

STATISTICAL FOUNDATIONS OF DATA SCIENCE

Course Outcomes: At the end of the course a student acquires the ability to
CO 1 : Compute probabilities using theorems in probability and probability distributions.
CO 2 : Find estimates of parameters and test hypothesis about parameters.
CO 3 : Establish relationship between variables using correlation and regression.
CO 4 : Apply the tools in Probability and Statistics in engineering and data science.
CO 5 : Take decisions by analyzing the data.

OBJECT ORIENTED PROGRAMMING

Course Outcomes: At the end of the course, student should be able to
CO1 : Design and implement object oriented concepts like encapsulation, abstraction and data hiding using programming constructs offered by java language.
CO2 : Realize the power of inheritance, interfaces and packages.
CO3 : Understand and demonstrate the concepts of exception handling and java I/O streams.
CO4 : Demonstrate knowledge and understanding of multithreading in java.
CO5 : Understand Java's Collection class hierarchy.

DATA STRUCTURES LAB

Course Outcomes: After completion of course, students will be able to
CO 1 : Understand the Object oriented constructs of python.
CO 2 : Implement data structures like stacks, queues and linked lists.
CO 3 : Understand Tree Data Structures, Search Trees and implement them.
CO 4 : Implement Priority Queues, Heap Data Structure, Heap Sort and other sorting techniques.
CO 5 : Understand Maps, Hash Tables, Sorted Maps and implement them.

STATISTICAL METHODS WITH R LAB

Course Outcomes: At the end of the course a student acquires the ability to
CO 1: Handle the data set using R
CO 2: Visualize and make decisions about the data using R
CO 3: Compute the probabilities using R
CO 4: Fit the appropriate probability distribution and to a dataset using R.
CO 5: Draw conclusions by fitting appropriate regression model to the dataset using R.

JAVA PROGRAMMING LAB

Course Outcomes: At the end of the course, the student should be able to
CO 1 : Implement object-oriented concepts like encapsulation, abstraction and data hiding using programming constructs offered by java language.
CO 2 : Develop java programs to realize code reusability through power of inheritance, interfaces and packages.
CO 3 : Develop java programs to demonstrate the concepts of exception handling and I/O streams.
CO 4 : Implement java applications using multithreading mechanism.
CO 5 : Write programs for solving real world problems using java collection frame work

VERBAL ABILITY LAB

(Common to all branches)

Course Outcomes:

CO 1 : Students will be empowered in English language skills and meet the demands of the global work environment.
CO 2 : Students will have enriched vocabulary
CO 3 : Students will be proficient in answering reasoning based questions.
CO 4 : Students will develop the ability to write grammatically correct sentences.
CO 5 : Students will enhance their professional writing skills through business letters.

COMPUTER ARCHITECTURE

Course Outcomes: At the end of the course, the student should be able to

CO 1 : Represent floating-point numbers according to IEEE standard and realize Booth's algorithm for multiplication and division operations on integers.
CO 2: Figure out functional units of the processor such as registers and Arithmetic Logical unit, instruction execution timing, bus operation, addressing modes, instruction Formats and have basic understanding of assembly language programming.
CO 3 : Attain the knowledge of micro programming and understand the concepts and design of memory hierarchy.
CO 4 : Demonstrate the basics of the system topics: Multi stage instruction pipeline and hazards, super scalar and Parallel architectures.
CO 5 : Understand the vector processing and parallelism in terms of a single processor and multi-processors

OPERATING SYSTEMS

(Common to IT and CSIT)

Course Outcomes: At the end of the course, the student should be able to

CO1 : Acquire basic knowledge about different functions, structures and design features of contemporary operating systems, to aid in applying and solving complex engineering problems.
CO2 : Analyze and formulate the problems, design the solutions, implement and demonstrate different process scheduling, Synchronization, and deadlock related algorithms.
CO3 : Design algorithmic experiments, analyze and interpret the data for different memory management techniques and their implementations.
CO4 : Differentiate and Demonstrate secondary storage structures, file systems, directory structures and their implementations. Select and apply appropriate disk scheduling algorithms to predict the performance.
CO5 : Understand the impact of the different protection and security threats in the context of social, safety, ethical, legal issues and design solutions and mechanisms including responsibilities to overcome them.

DESIGN AND ANALYSIS OF ALGORITHMS

(Common to IT and CSIT)

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

CO1 : Understand asymptotic notations to analyze the performance of algorithms.

CO2 : Apply algorithms for performing operations on graphs and trees.

CO3 : Identify the differences in design techniques and apply to solve optimization problems.

CO4 : To apply algorithm design paradigms for complex problems and solve novel problems, by choosing the appropriate algorithm design technique for their solution and justify their selection.

CO5 : Understand concepts of non-deterministic algorithms.

DATABASE MANAGEMENT SYSTEMS

(Common to CSE and CSIT)

Course Outcomes: At the end of the course, student should be able to

CO1 : Demonstrate an understanding of database management system components and features. Design E-R Model to represent real-world database application scenarios.

CO2 : Demonstrate mathematical approach towards querying database using relational algebra and relational calculus, and implement using SQL.

CO3 : Convert E-R Model to relational Model and design proper relational database while eliminating anomalies.

CO4 : Demonstrate the role of transaction management and concurrency control protocols.

CO5 : Demonstrate an understanding of query optimization techniques and apply PL/SQL concepts for database manipulations with constraints.

SOFTWARE ENGINEERING CONCEPTS

(CSIT)

Course Outcomes: At the end of the course, student should be able to

CO 1 : The student will have a clear understanding of underlying principles of software engineering, software myths and thorough understanding of SE process models.

CO 2 : The students will have exposure to requirements engineering process and related system models. Understand the background and driving forces for taking an Agile approach to software development.

CO 3 : The student will be able to appreciate software design process, design quality, design models and will be able to create architectural designs, component designs and UI designs.

CO 4 : The students will develop a strategic approach to testing and will be able to appreciate the art of debugging

CO 5 : The students will understand the importance of software metrics and risk management.

ALGORITHMS AND CASE TOOLS LAB

(CSIT)

Course Outcomes: At the end of the course, the student should be able to

CO1 : Understand and implement algorithms in Greedy strategy.

CO2 : Understand and implement algorithms in Dynamic Programming strategy.

CO3 : Design and implement projects using OO concepts.

CO4 : Use the UML analysis and design diagrams.

CO5 : Create code from design.

ADVANCED JAVA PROGRAMMING LAB

(CSIT)

Course Outcomes: At the end of the course, the student should be able to

CO 1 : Implement stacks and queues using user defined generic classes.

CO 2 : Implement hashing, sets, stacks and queues using collection classes in java.util package.

CO 3 : Use graphical user interfaces to create Swing applications for providing solutions to real world problems.

CO 4 : Use concepts of java programming with database connectivity.

DATABASE MANAGEMENT SYSTEMS LAB

(Common to CSE and CSIT)

Course Outcomes: At the end of the course, student should be able to

C0 1: Analyze database requirements and determine the entities involved in the system and their relationship to each other.

C0 2: Design E-R Model to represent database application scenarios.

CO 3: Convert/transform the E-R Model to relational tables, populate relational database and formulate SQL queries on data.

C0 4: Improve the database design by normalization.

C0 5: Implement PL/SQL procedures, function, triggers and cursors.

REASONING AND DATA INTERPRETATION LAB

Course Outcomes: At the end of the course, student should be able to

CO 1 : Understand the concepts of Statement-Argument, Assumption and Course of Action and use reasoning as a tool to match statements with arguments etc.

CO 2 : Look at data and find links and patterns, link data with conclusions and study data logically.

CO 3 : Study problem situations and use reasoning as a tool to find solutions.

CO 4 : Nurture the ability to use reasoning as a skill in real time problems solving.

CO 5 : Analyze and infer the data with respect to trend and case based.

GENDER SENSITIZATION
(Common to All Branches)

Course Outcomes: At the end of the Course student will be able to:

CO 1: Students will have developed a better understanding of important issues related to gender in contemporary India.

CO 2: Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and film.

CO 3: Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.

CO 4: Students will acquire insight into the gendered division of labour and its relation to politics and economics.

CO 5: Men and women students and professionals will be better equipped to work and live together as equals.

CO 6: Students will develop a sense of appreciation of women in all walks of life

CO 7: Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women, the textbook will empower students to understand and respond to gender violence.