SHRI JAWAHARLAL DARDA EDUCATION SOCIETY'S
JAWAHARLAL DARDA
INSTITUTE OF ENGINEERING AND TECHNOLOGY
YAVATMAL
Reg. No.: F-2386 CREATING TALENT FOR TOMMORROW DTE Code - EN 1120

Department of Computer Science & Engineering

Course Outcomes (CO)

Semester III

3CS201PC1 Data Structures & Algorithms

After successfully completing the course, the students will be able to:

CO 1. Explain basic concepts of data structures and algorithms for effective problem solving.

CO 2. Implement operations on arrays, linked lists, stacks, and queues to develop functional programs.

CO 3. Design tree and graph structures for solving real-world applications.

CO 4. Compare searching and sorting algorithms for evaluating efficiency.

CO 5. Choose suitable data structures and algorithms to solve computational problems.

CO 6. Classify and organize data using structures for file handling applications.

3CS202PC1 Object Oriented Programming (Java)

After successfully completing the course, the students will be able to:

CO 1. Explain OOP principles and Java basics to understand object-oriented programming.

CO 2. Apply classes, objects, constructors, and arrays to develop structured Java programs.

CO 3. Implement inheritance, interfaces, abstract classes, and packages to achieve code reusability.

CO 4. Analyze exceptions and use I/O streams for reliable file handling.

CO 5. Develop Java applets using lifecycle and graphics to create interactive applications.

CO 6. Design GUI applications with event handling to build user-friendly interfaces.

3CS203PC1 Discrete Mathematics

After successfully completing the course, the students will be able to:

CO 1. Apply propositional logic, predicates, and rules of inference to construct and validate mathematical arguments.

CO 2. Analyze and apply concepts of sets, relations, and functions to solve mathematical and computational problems.

CO 3. Demonstrate understanding of algebraic systems and apply them in coding and computation to solve mathematical and programming problems.

CO 4. Breakdown and design logical circuits using Boolean algebra and Karnaugh maps to optimize digital circuits.

CO 5. Apply tree structures for efficient data organization, traversal, and encoding applications such as Huffman coding.

CO 6 Analyze and solve problems involving graphs, including connectivity, traversals, and graph coloring applications.

3CS204MD1 Operating System

After successfully completing the course, the students will be able to:

CO 1. Apply process and thread management concepts for multitasking and communication.

CO 2. Apply and compare different scheduling algorithms to improve CPU efficiency.
CO 3. Explain memory management schemes like paging, segmentation to Analyze file and I/O management techniques

3SH205OE1 Soft Skills & Profile Building

After successfully completing the course, the students will be able to:

CO 1. Apply advanced interpersonal, analytical, and persuasive communication techniques in professional contexts for effective professional interactions.

CO 2. Demonstrate professional workplace etiquette, business communication, and group discussion skills to enhance employability.

CO 3. Analyze leadership styles, emotional intelligence, and team dynamics for effective collaboration.

CO 4. Design a structured and realistic career plan aligned with industry expectations and personal goals for professional growth.

CO 5. Create ATS-friendly résumés, professional portfolios, and digital profiles for personal branding.

CO 6. Perform effectively in interviews, workplace simulations, and job-search processes with professional confidence for enhanced employability.

3SH205OE2 Team Building & Management

After successfully completing the lab, the students will be able to

CO 1. Explain the principles and importance of effective team building in organizations to foster collaborative work culture.

CO 2. Apply team dynamics and collaboration strategies to achieve common goals.

CO 3. Analyze leadership styles and managerial roles for effective team performance.

CO 4. Demonstrate conflict resolution, negotiation, and interpersonal management skills for effective team performance.

CO 5. Apply motivation and performance management techniques in team-based environments for achieving organizational goals.

CO 6. Perform effectively as a team member or leader in simulated managerial scenarios to develop leadership competencies.

3CS206PC1 Data Structures & Algorithms Lab

After successfully completing the course, the students will be able to:

CO 1. Implement arrays, linked lists, stacks, and queues for structured data handling.

CO 2. Apply tree and graph traversal algorithms to solve real-time problems.

CO 3. Develop searching, sorting, and hashing programs to compare performance.

3CS207PC1 Object Oriented Programming Lab (Java)

After successfully completing the course, the students will be able to:

CO 1. Apply core object-oriented programming concepts—such as classes, objects, overloading, inheritance, interfaces, and abstraction—to design and implement Java programs.

CO 2. Use Java features including arrays, command line input, exception handling, file I/O, and GUI components (AWT/Swing) to develop, test, and debug structured applications.

CO 3. Develop interactive applications incorporating applets, graphics, event handling, and essential OOP mechanisms to solve foundational real world problems.

3CS208PC1 Programming Laboratory-I (Python Programming Lab)

After successfully completing the course, the students will be able to:

CO 1. Demonstrate the use of the Python interpreter, apply basic syntax, perform string operations, and manipulate built-in data structures.

CO 2. Apply functional programming concepts, list/tuple/dictionary processing, and problem solving techniques to implement computational logic in Python programs.

CO 3. Develop Python programs using OOP concepts, modules, packages, and techniques.

3CS209EM1 Human Resource Management

After successfully completing the course, the students will be able to:

CO 1. Understand the nature and role of HRM in engineering contexts.

CO 2. Apply concepts of manpower planning, recruitment, training, and performance appraisal to technical teams.

CO 3. Analyze contemporary issues and digital trends in HRM.

3SH210VE1 Constitutional Values and Fundamental Duties

After successfully completing the course, the students will be able to:

CO 1. Explain the historical background, making, and significance of the Indian Constitution to Understand the Constitution, Preamble, and core values.

CO 2. Interpret Fundamental Rights and Duties (Articles 12–35, 51A) to evaluate their implications through case studies in professional and civic life.

CO 3. Apply constitutional principles to engineering ethics, sustainability concerns (Articles 48A, 51A(g)), and demonstrate social commitment, innovation, and inclusive growth as nation builders.

3CS400FP1 Field Project

After successfully completing the course, the students will be able to:

CO 1. Apply digital and smart technologies to solve basic rural community problems.

CO 2. Perform field activities in digital literacy, agriculture support, health, and resource management.

CO 3. Work with communities to create simple, practical solutions for local development.

3AL001NC1 Disaster Management and Preparedness

After successfully completing the course, the students will be able to:

CO 1. Identify the concepts of disaster, hazard, vulnerability and risk, and classify disasters to understand the basic nature, causes and profiles of disasters in India.

CO 2. Analyze the disaster management cycle for risk assessment, mitigation, preparedness, response, recovery, and international disaster management frameworks.

CO 3. Apply disaster management practices, including stakeholder roles, national policies, engineers' responsibilities, and preparedness measures for effective disaster risk reduction.

3CS211DH1 Network Security

After successfully completing the course, the students will be able to:

CO 1. Explain basic concepts of network security, threats, vulnerabilities, and attack models to understand security risks.

CO 2. Apply cryptographic techniques to secure data and network communications.

CO 3. Analyse authentication, access control, and secure protocols for protecting network resources.

CO 4. Evaluate firewall, IDS/IPS, and monitoring techniques to mitigate network threats.

CO 5. Explain security issues in wireless, web, and emerging technologies to improve system security.

CO 6. Explain security issues in wireless, web, and emerging technologies to improve system security.

3CS211DH2 System Design

After successfully completing the course, the students will be able to:

CO 1. Explain system design concepts and requirement types for efficient software development.

CO 2. Compare architecture styles for effective real world system design.

CO 3. Apply modular design, cohesion, and coupling with UML for structured development.

CO 4. Analyze scalability, load balancing, and performance for reliable systems.

CO 5. Describe data management methods for efficient data-driven applications.

CO 6. Evaluate case studies like library, chat, and e commerce systems for practical design understanding.

Semester IV

4CS212PC1 Theory of Computation

After successfully completing the course, the students will be able to:

CO 1. Design DFA, NFA, and Mealy/Moore machines and apply minimization techniques for efficient computation.

CO 2. Analyze regular expressions and grammars and show their equivalence with finite automata for language representation.

CO 3. Develop and simplify CFGs and explain derivations, normal forms, and the Chomsky hierarchy for syntax analysis.

CO 4. Design pushdown automata and establish equivalence with CFGs for parsing applications.

CO 5. Apply Turing machines to construct and simulate computational models for problem solving.

CO 6. Analyze decidability and undesirability of problems to understand computational limits.

4CS213PC1 Operating System

After successfully completing the course, the students will be able to:

CO 1. Summarize OS concepts, structure, and process management to understand system operation.

CO 2. Apply CPU scheduling algorithms for improving system performance.

CO 3. Analyse synchronization issues and apply mechanisms to avoid deadlocks.

CO 4. Compare memory management techniques for efficient memory use.

CO 5. Describe file system structures and apply allocation methods for effective file storage.

CO 6. Summarize I/O organization and apply disk scheduling for faster data access.

44CS214PC1 Design & Analysis of Algorithm

After successfully completing the course, the students will be able to:

CO 1. Analyze iterative and recursive algorithms using time estimation and order notations for efficiency evaluation.

CO 2. Apply divide-and-conquer strategies to solve problems such as multiplication and convex hulls.

CO 3. Solve optimization and multistage problems using dynamic programming techniques.

CO 4. Solve multistage and optimization problems using dynamic programming techniques.

CO 5. Apply backtracking for combinational search and traversal problems.

CO 6. Evaluate sorting algorithms using time–space complexity and worst/average case analysis.

4CS215MD1 Computer Architecture & Organization

After successfully completing the course, the students will be able to:

CO 1. Understand and explain the basic structure of a computer, its functional units, memory addressing, and instruction sequencing for system design.

CO 2. Analyze and explain memory hierarchy and processing unit operations to optimize system speed and efficiency.

CO 3. Apply and execute arithmetic algorithms, interrupt handling, and DMA techniques for efficient I/O and computation to enhance I/O performance.

4SH216OE1 Quantitative and Logical Reasoning

After successfully completing the course, the students will be able to:

CO 1. Apply arithmetic and numerical techniques to solve quantitative problems accurately.

CO 2. Solve algebraic and equation-based problems using simplification and approximation methods to improve problem-solving efficiency.

CO 3. Analyze logical reasoning problems using structured and critical thinking approaches to improve decision-making skills.

CO 4. Interpret and analyze data using graphical and tabular methods for decision making for strategic planning.

CO 5. Solve complex logical puzzles and advanced reasoning problems efficiently for competitive examination success.

CO 6. Apply and execute arithmetic algorithms, interrupt handling, and DMA techniques for efficient I/O and computation to enhance I/O performance.

4SH216OE2 Critical Thinking & Decision Making

After successfully completing the course, the students will be able to:

CO 1. Apply critical thinking frameworks to analyze problems systematically.
CO 2. Evaluate information, assumptions, and arguments for logical consistency and validity.
CO 3.Analyze complex situations and identify feasible alternatives for decision making.
CO 4.Design rational and ethical decision-making strategies under uncertainty to ensure sustainable organizational outcomes.
CO 5.Apply quantitative and qualitative tools to support decision-making processes.
CO 6. Demonstrate effective decision making in simulated professional and team-based scenarios to resolve workplace challenges effectively

4CS217PC1 Operating System Lab

After successfully completing the course, the students will be able to:

CO 1. Apply Linux commands and system-level C programming to manage files, processes, threads, and synchronization.
CO 2. Analyze and simulate CPU scheduling, memory management, and page replacement algorithms to evaluate system performance.
CO 3. Implement file allocation, disk scheduling, and deadlock avoidance techniques to ensure efficient and safe OS operations.

4CS218PC1 Design & Analysis of Algorithm Lab

After successfully completing the course, the students will be able to:

CO 1. Implement multiplication, searching, and sorting, basic matrix optimization algorithms using C with correct recursive and divide-and-conquer techniques.
CO 2. Apply greedy and graph algorithms (Kruskal, Prim, Dijkstra, BFS, DFS, Floyd-Warshall) to solve MST and shortest-path problems through effective programming.
CO 3. Analyze algorithm performance by comparing time complexity, behavior, and correctness for different inputs.

4CS219VS1 Programming Laboratory –II (Web Designing Lab)

After successfully completing the course, the students will be able to:

CO 1. Understand basic web technologies, HTML, PHP syntax, and file handling to create simple dynamic pages.

CO 2. Analyse and implement authentication, sessions, cookies, and input validation to ensure secure and accurate web applications.

CO 3. Design modular PHP web applications using CSS, file operations, and proper testing to build usable and creative websites.

4SH220AE1 Technical Writing

After successfully completing the course, the students will be able to:

CO 1. Apply principles of technical writing in engineering documents.

CO 2. Apply technical writing skills to prepare professional documents.

CO 3. Create ethical, well-structured technical and research documents using IEEE referencing for professional and academic communication.

4SH221EM1 Fundamentals Of Book Keeping And Accounting

After successfully completing the course, the students will be able to:

CO 1. Understand and follow the Concepts and Principles of Bookkeeping.

CO 2. Apply and perform the Double-Entry System of Accounting

CO 3. Understand and execute Financial Statements.

4CE222VE1 Environmental Science

After successfully completing the course, the students will be able to:

CO 1. Analyze renewable and non-renewable natural resources and associated problems to promote sustainable utilization for future generations.

CO 2. Analyze food chains, webs, and ecological pyramids to evaluate ecological interactions and succession processes.

CO 3. Examine shift from unsustainable to sustainable development to promote responsible resource planning for society.

4CS223DH1 Intrusion Detection & Prevention System

After successfully completing the course, the students will be able to:

CO 1. Explain intrusion types, attack patterns, and threat modeling techniques to understand advanced cyber threats.

CO 2. Analyze IDS and IPS architectures and detection methodologies for effective intrusion detection.

CO 3. Apply signature-based, anomaly-based, and hybrid detection techniques to identify. Intrusions accurately.

CO 4. Evaluate IDS/IPS tools for network, host, and cloud environments to select appropriate security solutions.

CO 5. Analyze logs, alerts, and traffic data to detect and respond to intrusions.

CO 6. Assess real-world intrusion cases and design mitigation strategies for improved system security.

4CS223DH2 Software Testing

After successfully completing the course, the students will be able to:

CO 1. Define errors, faults, failures and verification vs validation to understand software defects and QA basics.

CO 2. Distinguish unit, integration, system, acceptance, regression testing for choosing correct testing levels.

CO 3. Apply equivalence partitioning and boundary value analysis to design black-box test cases.

CO 4. Use path coverage and cyclomatic complexity for effective white-box testing.

CO 5. Explain test automation need, benefits, challenges to improve testing speed and reliability.

CO 6. Describe performance, security, and usability testing for ensuring non-functional quality.

5CS224EC1 Mobile App Development (Android)

After successfully completing the course, the students will be able to:

CO 1. Apply Android basics, UI components, and activity lifecycle to create functional mobile interfaces.

CO 2. Analyze and implement data storage, background tasks, and API-based communication for dynamic mobile apps.

CO 3. Design, build, and deploy complete Android apps using multimedia, Firebase, and performance-optimized components.

5CS225EC1 Full stack Developer

After successfully completing the course, the students will be able to:

CO 1. Apply HTML, CSS, JavaScript, and frontend frameworks to build responsive user interfaces.

CO 2. Develop backend services using Node.js/Express and implement database operations using MongoDB/MySQL.

CO 3. Design, integrate, and deploy full-stack applications with REST APIs, authentication, testing, and cloud hosting.

Semester V

5CS220PC Database Management Systems

After successfully completing the course, the students will be able to:

CO 1. Recognize the need of database management system.

CO 2. Design ER and EER diagram for real life applications.

CO 3. Formulate SQL queries.

CO 4. Apply the concept of normalization to relational database design.

CO 5. Describe the concept of transaction, concurrency and recovery.

CO 6. Evaluate NoSQL database types and explain their suitability for handling unstructured data.

5CS221PC Compiler Design

After successfully completing the course, the students will be able to:

CO 1. Describe the fundamentals of compiler and various phases of compilers.

CO 2. Design and implement LL and LR parsers.

CO 3. Solve various parsing techniques like SLR, CLR, LALR.

CO 4. Examine the concept of Syntax-Directed Definition and translation..

CO 5. Assess the concept of Intermediate-Code Generation and run-time environment.

CO 6. Explain the concept of code generation and code optimization.

5CS222PC Computer Architecture & Organization

After successfully completing the course, the students will be able to:

CO 1. Explain the basic structure and functional organization of a computer system.

CO 2. Describe the internal operation of the CPU and instruction execution cycle.

CO 3. Compare and select appropriate memory and I/O devices based on system requirements.

CO 4. Apply number representation techniques and perform arithmetic operations.

CO 5. Explain concepts of parallel processing and pipelining in modern computer architectures.

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5CS223PE3 Internet of Things

After successfully completing the course, the students will be able to:

CO 1. Explain the basic concepts, architecture, and components of Internet of Things.

CO 2. Describe IoT design methodology and platforms used for IoT solutions.

CO 3. Interface and integrate various sensors with IoT development boards.

CO 4. Design and implement IoT-based real-time applications.

CO 5. Analyze IoT use cases across domains such as smart homes, cities, and agriculture.

5CS224PC Database Management Systems Lab

After successfully completing the course, the students will be able to:

CO 1. Design ER models for real-world database applications.

CO 2. Design and develop relational and NoSQL databases.

CO 3. Apply normalization techniques to database schemas.

CO 4. Write and execute SQL queries for data retrieval and manipulation.

CO 5. Implement integrity constraints, triggers, views, and indexes.

CO 6. Develop database-driven applications using host languages and web technologies.

5CS225PC Compiler Design Lab

After successfully completing the course, the students will be able to:

CO 1. Identify the fundamentals of compiler and its phases.
CO 2. Use the powerful compiler generation tools such as Lex and Yacc.
CO 3. Write a lexical scanner, either from scratch or using Lex.
CO 4. Develop program for solving parser problems..
CO 5. Examine the various optimization techniques.

5CS226PE Programme Elective Course I Lab – Internet of Things

After successfully completing the course, the students will be able to:

CO 1. Implement IoT system architectures using sensors, controllers, and cloud platforms.
CO 2. Interface and program IoT hardware such as Raspberry Pi and sensors using Python.
CO 3. Deploy and manage IoT applications using networking and cloud services.
CO 4. Analyze real-time data generated from IoT devices.
CO 5. Design and demonstrate complete IoT solutions for real-world applications.

5CS227MD - Database Management Systems

After successfully completing the course, the students will be able to:

CO 1. Understand the basics of database systems and relational models.
CO 2. Design normalized relational databases and write SQL queries.
CO 3. Apply concepts of indexing, transactions, and database design in real-world scenarios.

5CS228MD - Web Technologies and Development

After successfully completing the course, the students will be able to:

CO 1. Understand the structure and functioning of web applications and web servers.
CO 2. Design and develop static and interactive web pages using HTML, CSS, and JavaScript.
CO 3. Explain and apply basic principles of web hosting, forms, and client-server communication.

5CS229ML - Web Technologies Lab

After successfully completing the course, the students will be able to:

CO 1. Design responsive static web pages using HTML and CSS.
CO 2. Implement interactivity in web pages using JavaScript.
CO 3. Develop basic client-server applications with forms and validations.

5CS230OE1 - Cyber Laws and Ethics

After successfully completing the course, the students will be able to:

CO 1. Understand the nature, types, and evolution of cybercrimes and ethical issues.
CO 2. Describe legal provisions under Indian cyber laws and global cyber regulations.
CO 3. Apply ethical principles and legal knowledge to real-world digital issues.

Semester VI

6CS231PC Artificial Intelligence

After successfully completing the course, the students will be able to:

CO 1. Explain concepts of Artificial Intelligence and different types of intelligent agents and their architecture.

CO 2. Formulate problems as state space search problem & efficiently solve them.

CO 3. Summarize the various searching techniques, constraint satisfaction problem and example problems -game playing techniques.

CO 4. Apply AI techniques in applications which involve perception, reasoning and learning.

CO 5. Compare the importance of knowledge, types of knowledge, issues related to knowledge acquisition and representation.

6CS232PC Design & Analysis of Algorithm

After successfully completing the course, the students will be able to:

CO 1. Analyze algorithms with respect to time and space complexity.

CO 2. Apply algorithm design principles to solve computational problems.

CO 3. Differentiate and apply various algorithmic design strategies.

CO 4. Evaluate efficiency of algorithms using asymptotic notations.

CO 5. Implement and analyze standard searching and sorting algorithms.

6CS233PC Cloud Computing

After successfully completing the course, the students will be able to:

CO 1. Explain the concepts, architecture, and applications of cloud computing.
CO 2. Analyze cloud deployment and service models and their associated challenges.
CO 3. Explain virtualization concepts and their role in cloud infrastructure.
CO 4. Compare major cloud service providers and their offerings.
CO 5. Analyze security, privacy, and compliance issues in cloud environments.

6CS234PE2 Big Data Analytics

After successfully completing the course, the students will be able to:

CO 1. Apply big data tools and analytics techniques on large datasets.
CO 2. Analyze data using clustering and classification algorithms.
CO 3. Implement regression, recommendation, and analytics algorithms for big data.
CO 4. Perform analytics on streaming and time-series data.
CO 5. Use NoSQL and graph databases for big data management and analysis.

6CS235PE1 - Data Warehousing & Mining

After successfully completing the course, the students will be able to:
CO 1. Explain fundamental concepts and techniques of data mining .
CO 2. Analyze similarity and dissimilarity measures among datasets.
CO 3. Apply data preprocessing techniques for data mining applications.
CO 4. Explain data warehouse concepts and data mining principles.
CO 5. Perform multidimensional data analysis using data cubes.
CO 6. Analyze and evaluate frequent patterns, association rules, and correlations.

6CS236PC Design & Analysis of Algorithm Lab

After successfully completing the course, the students will be able to:

CO 1. Carry out the analysis of various Algorithms for mainly Time complexity.

CO 2. Apply design principles and concepts to algorithm design.

CO 3. Understand different algorithmic design strategies.

CO 4. Analyze the efficiency of algorithms using time complexity.

CO 5. Apply the standard sorting algorithms.

6CS237PC Cloud Computing Lab

After successfully completing the course, the students will be able to:

CO 1. Demonstrate the use of cloud architectures, deployment models, and service models using practical tools.

CO 2. Configure and manage virtual machines, storage, and networking resources in cloud environments.

CO 3. Deploy applications on cloud platforms using IaaS and PaaS services.

CO 4. Analyze cloud security issues and apply basic security mechanisms in cloud service models.

CO 5. Compare and evaluate major cloud service providers based on services, performance, and use cases..

6CS238PE Programme Elective Course II Lab – Big Data Analytics

After successfully completing the course, the students will be able to:

CO 1. Use big data platforms such as Hadoop, Spark, and NoSQL databases for data analytics.

CO 2. Analyze large datasets using clustering, classification, regression, and recommendation techniques.

CO 3. Apply analytics on structured, semi-structured, and unstructured data including text and time series.

CO 4. Perform data stream and batch analytics using scalable frameworks.

CO 5. Design and implement analytics solutions using NoSQL and graph-based data models.

6CS239MD Cloud Computing & Virtualization

After successfully completing the course, the students will be able to:

CO 1. Explain cloud computing paradigms and deployment models.

CO 2. Understand the role of virtualization in enabling cloud environments.

CO 3. Compare and contrast different cloud service providers and applications.

6CS240VS Computing Skill # 2 (VSEC IV)

After successfully completing the course, the students will be able to:

CO 1. Apply advanced Python features for real-world data processing and automation tasks.

CO 2. Develop RESTful APIs and backend services using Python frameworks.
CO 3. Implement database-driven applications using SQL/NoSQL and ORM tools.
CO 4. Integrate authentication, security, and logging mechanisms in applications.
CO 5. Design, deploy, and demonstrate a cloud-ready mini application.

Semester VII

7KS01 SOCIAL SCIENCES AND ENGINEERING ECONOMICS

After successfully completing the course, the students will be able to:

CO 1. An ability to understand the importance of social science and economics in professional life.

CO 2. An ability to utilize high-level interpersonal skills to negotiate with stakeholders and maintain cordial relationships with them reflecting the professional ethics and responsibilities.

CO 3. Understanding of professional responsibility with socioeconomic constraints and norms

CO 4. An ability to understand the need of society and design the system to fulfil it with deep analysis.

CO 5. An ability to understand the social science and engage in a lifelong learning process performing better in the group as well as individually.

CO 6. An ability to understand the various culture activities in the society.

7KS02 COMPUTER GRAPHICS

After successfully completing the course, the students will be able to:

CO 1. Describe the basic concepts of Computer Graphics.

CO 2. Demonstrate various algorithms for basic graphics primitives.

CO 3. Apply 2-D geometric transformations on graphical objects.

CO 4. Use various Clipping algorithms on graphical objects.

CO 5. Explore 3-D geometric transformations, curve representation techniques and projections methods

CO 6. Explain visible surface detection techniques and Animation

7KS03 CLOUD COMPUTING

After successfully completing the course, the students will be able to:

CO 1. Describe the fundamental concept, architecture and applications of Cloud Computing.

CO 2. Discuss the problems related to cloud deployment model.

CO 3. Examine the concept of virtualization.

CO 4. Identify the role of network connectivity in the cloud.

CO 5. Assess different Cloud service providers.

CO 6. Inspect the security issues in cloud service models.

7KS04 DATA WAREHOUSE AND MINING (PE-IV)

After successfully completing the course, the students will be able to:

CO 1. Explain the basics of data mining techniques.

CO 2. Identify the similarity and dissimilarity between the data sets.

CO 3. Apply Data Preprocessing to techniques.

CO 4. Describe Data Warehouse fundamentals, Data Mining Principles.

CO 5. Illustrate Multidimensional Data Analysis in Cube Space

CO 6. Assess Mining Frequent Patterns, Associations, and Correlations

7KS05 BLOCK CHAIN FUNDAMENTALS (PE-V)

After successfully completing the course, the students will be able to:

CO 1. Understand the concept of decentralization of the block chain with different layers of blockchain

CO 2. Apply basic cryptographic primitives with encryption standards.

CO 3. Analyse& Design Consensus Algorithms.

CO 4. Examine fundamentals of Bitcoin, how Bitcoin transactions are constructed and used with Bitcoin addresses, accounts, and mining

CO 5. Understand foundation, architecture, and use of the Ethereum blockchain.

CO 6. Execute & build block chain application/ transaction.

7KS06 COMPUTER GRAPHICS – LAB.

After successfully completing the course, the students will be able to:

CO 1. Describe the basic concepts of Computer Graphics.

CO 2. Demonstrate various algorithms for basic graphics primitives.

CO 3. Apply 2-D geometric transformations on graphical objects.

CO 4. Use various Clipping algorithms on graphical objects.

CO 5.Explore 3-D geometric transformations, curve representation techniques and projections methods

CO 6. Explain visible surface detection techniques and Animation.

7KS07 EMERGING TECHNOLOGY LAB III

After successfully completing the course, the students will be able to:

CO 1. To understand use of Pandas for data science.

CO 2. To define the structure and components of a Pandas program.

CO 3. To learn how to apply different operations on pandas series.

CO 4. To learn how to use different index properties in pandas dataframe.

CO 5. To learn different operations on string values in pandas.

CO 6. To learn how to split the dataframe& get mean,min& max value.

7KS08 EMERGING TECHNOLOGY LAB IV

After successfully completing the course, the students will be able to:

CO 1. Understand the concept of Hash Function and Cryptographic primitives with practical.

CO 2. Study the ledger Metamask Practically storing and sending the bitcoin.

CO 3. Study and understand the Performance of Blockchain And how the chain get created.

CO 4. Learning the ethereum virtual machine practically and analysis.

CO 5. study, How we can create smart contract and how we can add the contract into the blockchain

CO 6. Understanding the concept of how we can create our own private local blockchain network and for that installing plugins and creating an environment.

7KS09 PROJECT AND SEMINAR

After successfully completing the course, the students will be able to:

CO 1. Identify emerging technologies/current trends to gather relevant information through independent or collaborative study.

CO 2. Analyse related work and literature in the identified field of study.

CO 3. Summarize related work and literature in the identified field of study.

CO 4. Design a clear, well-constructed document that represents both technical and non-technical information using engineering-standard figures, reports and drawings.

CO 5. Demonstrate effective oral presentations in given time constraints, using a variety of presentation media.

CO 6. Develop the listening skills and comprehend information, instructions, and viewpoints either as a presenter or as an audience.

Semester VIII

8KS01 OBJECT ORIENTED ANALYSIS AND DESIGN

After successfully completing the course, the students will be able to:

CO 1. Describe Object Oriented principles, for performing object-oriented analysis and design.

CO 2. Explain the basic concepts of UML, Software Development Processes and Design pattern.

CO 3. Illustrate requirements for developing a software.

CO 4. Create initial domain model & system sequence diagram for use case scenario.

CO 5. Design static and dynamic objects for modeling.

CO 6. Construct UML and Design Patterns for developing object-oriented software

8KS02 PROFESSIONAL ETHICS AND MANAGEMENT

After successfully completing the course, the students will be able to:

CO 1. Relate ethical and non-ethical situations

CO 2. Outline ethics in the society & environment

CO 3. Examine the moral judgment & correlate the concepts in addressing the ethical dilemmas

CO 4. Identify risk and safety measures in various engineering fields

CO 5. Justify ethical issues related to engineering responsibilities and rights

CO 6. Synthesize cognitive skills in solving social problems

8KS03 SYSTEM & SOFTWARE SECURITY

After successfully completing the course, the students will be able to:

CO 1. Relate malicious and non-malicious attacks.

CO 2. Outline web common vulnerabilities, attack mechanisms and methods against computer and information systems.

CO 3. Apply relevant methods for security modeling and analysis of Operating System.

CO 4. Investigate a secure network by monitoring and analyzing the nature of attacks.

CO 5. Explain cryptography, intrusion detection and firewall system

CO 6. Implement different security solutions at various levels such as operating systems, databases and clouds.

8KS04 MODELLING & SIMULATION

After successfully completing the course, the students will be able to:

CO 1. Describe System models & system modelling.

CO 2. Explain continuous system methods of obtaining solutions.

CO 3. Illustrate the need of simulation and mathematical modeling

CO 4. Examine simulation of Queuing System and PERT network.

CO 5. Inspect experimentation of Simulation.

CO 6. List different special purpose languages use for continuous and discrete systems

8KS05 EMERGING TECHNOLOGY LAB V

After successfully completing the course, the students will be able to:

CO 1. Analyzethe various networking protocols working.

CO 2. Analyze the effect of various threats in the system.

CO 3. Understanding the effects of network vulnerabilities.

CO 4. Understanding the working of various tools used in network analysis.

CO 5. Analyzing the case study of Attack.

CO 6. Understanding and analyzing the network vulnerabilities.

8KS06 EMERGING TECHNOLOGY LAB VI

After successfully completing the course, the students will be able to:

CO 1. To study basic concept of modelling & stimulation

CO 2. To study monte-carlo stimulation.

CO 3. To study serving queuing system.

CO 4. To understands forecasting & regression analysis.

CO 5. To study various reduction techniques

CO 6. To study the decay models.

8KS07 PROJECT & SEMINAR

After successfully completing the course, the students will be able to:

CO 1. Competence in applying the software engineering principles in planning, formulating an innovative design/ approach and computing the requirements appropriate to solve the problem within the context of legal, global and environment constraint.

CO 2. Capability to develop/implement the design with appropriate techniques, resources and contemporary tools exhibiting integrity and ethical behaviour in engineering practice.

CO 3. Ability to plan, monitor, and manage project schedule, resources, and work assignments to ensure timely completion.

CO 4. Ability to test and defend performance of the implemented project and understand the Implication of the solution.

CO 5. Perform professionally as a team member, accepting responsibility, taking initiative, and providing leadership necessary to ensure Project success.

CO 6. Ability to use formal and informal Communication with team members and guide, make presentation and prepare technical document.