

Department of Computer Science and Engineering

Subject: Design and Analysis of Algorithms

Subject Code: CSE 353

Class: TE

Course Outcomes (COs)

- Students got the idea to build a solid foundation of the most important fundamental subject.
- Students understood the paradigms and approaches used to analyze and design algorithms and to appreciate the impact of algorithm design and practice.
- Students understood how to measure performance of an algorithm.
- Students understand and Learn the Algorithm and programming of Searching and Sorting Methods and implementation of these algorithms using Divide and Conquer Algorithm.
- Students understood the Greedy Methods using Knapsack problem, Huffman coding and Single source shortest path with Learn Dynamic Programming: Tree traversal and graph traversal technique.
- Students understood the Backtracking Method and Implementation of Concept of Branch and Bound technique.




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Department of Computer Science and Engineering

Subject: Design and Analysis of Algorithms

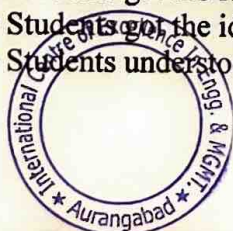
Subject Code: CSE353

Class: TE

Program specific Outcomes (PSOs)

- Students understood the Algorithm: characteristics, specifications, Writing Pseudo-Code
- Students understood the Frequency count and its importance in analysis of an algorithm.
- Students understood the Asymptotic Notations: Time complexity & Space complexity of an algorithm, Big 'O', ' ' & 'Ω' notations, Best, Worst and Average case analysis of an algorithm.
- Students understood the Analysis of searching algorithms: sequential, binary search, bubble, insertion, selection, heap sort.
- Students understood the Analysis of each sorting technique for best, worst and average case, Concept of Internal & External sorting.
- Students understood the Divide and conquer: basic algorithm and characteristics.
- Students understood the Binary Search: method and analysis of binary search for best, worst and average case for searches.
- Students understood the Quick Sort, Merge Sort: method and analysis of algorithms
- Students understood the Finding the largest and smallest number in a list using DnC.
- Students got the idea of Greedy Method: basic algorithm and characteristics.
- Students got the idea of Fractional Knapsack Problem solving using greedy method, Optimal merge patterns and optimal storage on tapes.
- Students understood the Job sequencing with deadlines, Huffman Coding: greedy method
- Students understood the Minimum cost spanning trees: Prim's and Kruskal's Algorithm
- Students understood the Single source shortest path
- Students understood the Dynamic Programming Method: basic algorithm and characteristics.
- Students understood the 0/1 Knapsack Problem solving using DP method, Multistage graphs, All pair shortest Path.
- Students understood the Optimal binary search trees, Travelling salesperson problem.
- Students understood the Tree traversal techniques, Graph traversal techniques: DFS, BFS
- Students understood the Connected components, Bi-connected components & spanning trees
- Students got the idea of Backtracking Method: basic algorithm and characteristics.
- Students got the idea of Solving n-queens problem, Sum of subsets problem
- Students understood the Graph colouring, Hamiltonian cycle (TSP)
- Students understood the Branch and bound: basic algorithm and characteristics.
- Students understood the Solving n-queens using branch & bound
- Students understood the FIFO Branch and Bound & Least Cost Branch & Bound
- Students got the idea of Least Cost Search
- Students got the idea of 15-puzzle
- Students understood the Solving Travelling salesperson problem using branch & bound


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Department of Computer Science and Engineering

Subject: Theory of Computation

Subject Code: CSE 302

Class: TE

Course Outcomes (COs)

- Students understood the fundamental concepts of formal languages, grammars and automata theory.
- Students got the idea to study and develop fundamentals for computational theory.
- Students understood the abstract models for solving problems in computing.
- Students understood the differences between decidability and un-decidability.
- Students understood the impart details knowledge about different types of Automata and their applications in compiler construction.
- Students understood the analysis and calculation skill amongst the students.




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Department of Computer Science and Engineering

Subject: Theory of Computation


Subject Code: CSE302

Class: TE

Program specific Outcomes (PSOs)

- Students understood the Finite Automata, Structural representation, Automata and complexity.
- Students got the knowledge of Classification of languages, Central Concepts of Automata Theory, Deterministic Finite Automata,
- Students understood the Nondeterministic Finite automata, FA with epsilon transitions, Applications of FA, FA with output : Moore and Mealy machine
- Students understood the Regular Expressions, Finite automata and Regular Expression, Algebraic laws for RE.
- Students got the knowledge of Ardens theorem, Pumping lemma for Regular languages. Students got the knowledge of Applications of pumping lemma, Closure and Design
- Students understood the Properties of regular languages, Equivalence and minimization of Automata, Applications of Regular Expressions.
- Students understood the Context Free Grammars, Parse trees, Applications of CFG, Ambiguity in grammars and languages,
- Students understood the Normal Forms for CFG: Chomsky Normal Form
- Students understood the Pushdown Automata – Definition, Languages of PDA, Acceptance by Empty Stack and Final State,
- Students understood the Equivalence of PDA and CFG , Deterministic Pushdown Automata, Pumping lemma for CFL.
- Students understood the model of linear bounded Automata.
- Students understood the Turing machine – Notation for TM, Instantaneous description for TM , Transition diagram for TM,
- Students understood the language of a TM, Design of Turing Machines, Church Turing Thesis, TM and halting,
- Students understood the Extensions to the basic TM: Multitape TM, Nondeterministic TM, Universal TM.
- Students understood the Decidable problems, Decidable problems concerning Regular Language, Undecidable Problems,
- Students understood the Simple Un-decidable Problem: Post Correspondence Problem, Intractable Problems: Classes P and NP




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Department of Computer Science and Engineering

Subject: Software Development Lab - II

Subject Code: CSE 377

Class: TE

Course Outcomes (COs)

- Student understood the difference between android and other mobile development platform.
- Student understood the how android app work through life cycle, intents, manifests etc.
- Student understood the different android app with compelling user interfaces using menus, layouts and Views.
- Student understood the use of android API for data storage, retrieval, content providers, SMS and Telephony.
- Student understood the Tap into location based services and different sensors.
- Student understood the overall working of mobile operating system.




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Department of Computer Science and Engineering

Subject: Artificial Intelligence (Elective-II)


Subject Code: CSE392

Class: TE

Program specific Outcomes (PSOs)

- Students understood the Introduction to AI, Foundation of AI, History, AI Techniques, AI Problems, Production systems, Problem characteristics, Production System Characteristics, Issues in the Design of Search Problems.
- Students understood the Heuristic search, Hill Climbing, Best first search
- Students understood the Problem Reduction, Means-Ends Analysis.
- Students understood the Representations and Mapping, Knowledge Representation, issues in Knowledge Representation.
- Students understood the Representing simple facts in logic, representing instance
- Students got the idea of ISA relationships, Computable functions and predicates.
- Students understood the Procedural Versus Declarative Knowledge, Logic Programming, Forward and backward reasoning, Forward and backward.
- Students got the idea of Matching, Control Knowledge, Nonmonotonic reasoning, Logics for Nonmonotonic reasoning.
- Students understood the Truth Maintenance Systems, Probability and Bayes' Theorem, Certainty Factors and Rule-Based Systems.
- Students understood the Bayesian Networks, Fuzzy Logic.
- Students understood the Planning: Introduction, An example domain: The blocks world, component of planning system, goal stack planning, nonlinear planning using constraint pasting, hierarchical planning, Reactive system.
- Students understood the Game playing: Min max search procedure, Alpha-Beta cutoffs.
- Students understood the Natural Language Processing: introduction, Symantic Processing, Semantic Analysis, Discourse and Pragmatic Processing.
- Students understood the learning, Rote learning, learning by taking advice, learning in problem solving.
- Students got the idea of learning from examples: Induction, explanation based learning, Representing and using Domain knowledge.
- Students understood the Architecture of expert systems, knowledge acquisition.




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Department of computer Science and Engineering

Subject: Artificial Intelligence

Subject Code: CSE 392

Class: TE

Course Outcomes (COs)

- Student understood the Study the concepts of Artificial Intelligence.
- Student understood the role of searching and sorting algorithms in artificial intelligence.
- Student understood the Learn a methods of solving problems using Artificial Intelligence.
- Student understood the implement of concepts of Artificial Intelligence using Prolog and predicate logic.
- Student understood the Introduce a concepts of Expert Systems and machine learning.
- Student understood the be familiar with the applicability, strengths, and weaknesses of the basic knowledge representation, problem solving, machine learning, knowledge acquisition and learning methods in solving particular engineering problems.




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Department of Computer Science and Engineering

Subject: Communication Skill-II

Subject Code: BSH305

Class: TE

Program specific Outcomes (PSOs)

- Students understood the Self-Assessment: Understanding Self Core Competency (SWOT/SWOC)
- Students understood the Long term and short-term Goal Setting
- Students understood the Execution Skills
- Students got the idea Interpersonal Communication
- Students understood the Conflict Management
- Students understood the Problem Solving
- Students understood the Decision Making
- Students got the idea Persuasion and Influence
- Students understood the Group Vs Team
- Students understood the Team Building
- Students understood the Team Work
- Students got the idea Developing Leadership Skills
- Students understood the Clothing Etiquette, Personal hygiene and grooming
- Students understood the Time Management
- Students got the idea of Influencing Skills (Impression)
- Students understood the Balancing personal and professional Life
- Students understood the Ethics, Values and Laws




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Department of Computer Science and Engineering

Subject: Communication Skill - II

Subject Code: CSE 305

Class: TE

Course Outcomes (COs)

- Student understood the To imbibe leadership skills
- Students understood how to develop interpersonal Skills
- Students understood the idea of how to introduce corporate etiquettes
- Student understood the how to imbibe team skills
- Students understood the idea of how to develop written communication skills
- Students understood the idea of how to develop oral communication skills




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Department of computer Science and Engineering

Subject: System Programming

Subject Code: CSE 354

Class: TE

Course Outcomes (COs)

- Student understood the basic of System programming
- Student got the idea how to analyze the various Concept of Assembler.
- Student Understand what Macro Language is and how to define Macro.
- Student got the idea of how to Linker and Loader works.
- Students understtod the concept of the different techniques used in parsing.
- Students understood the various phases of compiler and compare its working with assembler




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Department of Computer Science and Engineering

Subject: Systems Programming


Subject Code: CSE354

Class: TE

Program specific Outcomes (PSOs)

- Students understood the Concept, historical development, components of system software, life cycle of source program, programming languages and language processors.
- Students understood the fundamentals of language processing, symbol table, foundation of system software.
- Students understood the General design procedure, design the assembler, types of assemblers, one pass assembler, advanced assembly process, design of two pass assembler
- Students understood the Macro instructions, features of macro facility, macro instruction arguments, conditional macro expansion, macro call within macros, macro instruction defining macros
- Students understood the Implementation- Implementation of restricted faculty : two pass algorithm, single pass algorithm
- Students understood the implementation of macro calls within macros, implementation within assembler.
- Students understood the Loaders scheme : “compile and go loaders”, general loader schemes, absolute loaders,
- Students understood the subroutine linkages, relocating loaders, direct linking loaders, other loader schemes, binders
- Students understood the linking loaders overlays, dynamic binders.
- Students got the idea of Design of absolute loaders, design of direct linking loaders, linkers vs. loaders.
- Students understood the Programming language grammar, classification of grammar, ambiguity in grammatic specification, scanning, parsing, top down and bottom up parsing, language processor development tools
- Students understood the Causes of large semantic gap, binding and binding times, data structure used in compiling scope rules, memory allocation, compilation of expression, compilation of control structure, code optimization.
- Students understood the Benefits of interpretation, overview of interpretation, classification of debuggers.
- Students got the idea of dynamic/interactive debugger.




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Department of Computer Science and Engineering

Subject: Software Development Lab - I

Subject Code: CSE 326

Class: TE

Course Outcomes (COs)

- Students understood the idea of learn ASP.net
- Students understood the idea of learn C# features
- Students got the idea of Performing database operations using ADO.Net and exception handling
- Students got the idea of learning different server controls of asp.net
- Students got the idea of To learn navigation, session, cookies, event handling
- Students understood the idea of learning web services




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Department of Computer Science and Engineering

Subject: Lab IV Software Development Lab I (ASP .NET using C#)

Subject Code: CSE326

Class: TE

Program specific Outcomes (PSOs)

- Students understood the Visual Studio IDE, ASP .NET & the .NET Framework, Introduction to C#, Data
- Students understood the Types, Variables and expressions, control statements, functions, namespaces, Assembly, Components of Assembly, Private and Shared Assembly
- Students got the idea of Web Applications, ASP.NET page lifecycle, Server Side Controls, Client Side Controls,
- Students got the idea of Basic Controls, Validation Controls, Master & Content Pages in ASP .NET
- Students understood the Navigation Controls, State management techniques - Session, Query string, Cookies, View State
- Students understood the Event Handling, Creating and deploying web services, Deployment of Web Application.
- Students understood the ADO.NET, Static and Dynamic Data Binding, ADO.NET architecture, data control, data source control.
- Students understood the Introduction to Language Integrated Query (LINQ), Querying a Database with LINQ,
- Students understood the The Programming Model - The Evolution of SharePoint Programming, Challenges with CSOM in SharePoint 2010.
- Students understood the Challenges with Server-Side Code.
- Students understood the Deployment Scenarios - On-Premise Deployment, Office 365 Deployment, Hosted Deployment, Hybrid Deployment.
- Students understood the The App Model - SharePoint-Hosted Apps, Provider-Hosted Apps, Azure Auto-Hosted Apps.
- Students got the idea of Enterprise Content Management - Site Policies, Managed Meta Data.
- Students got the idea of Web Content Management, Search - The Structural Publishing Model, The Dynamic Publishing Model,
- Students got the idea of Taxonomy-Driven Navigation, Term-Driven Publishing Pages, Cross-Site Publishing, Hostname Site.




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Department of Computer Science and Engineering

Subject: Digital Image Processing

Subject Code: CSE 342

Class: TE

Course Outcomes (COs)

- Students understood the impart of fundamental knowledge of Image and its processing.
- Students understood the digital image processing beyond the fundamental level.
- Students understood the concept of complete digital image processing steps.
- Students got the idea of how to choose appropriate image processing algorithm to achieve desired result.
- Students understood how to properly implement DIP algorithms using modern computing tools such as MATLAB, interpret and present the results
- Students got the idea of how to recognize patterns using highly modern and sophisticated software's.




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Department of Computer Science and Engineering

Subject: Digital Image Processing (Elective-I)

Subject Code: CSE342

Class: TE

Program specific Outcomes (PSOs)

- Students got the idea of Image, Pixel, and Digital image
- Students understood the Fundamental Steps and Components of Digital Image Processing
- Students understood the Brightness adaption and discrimination and Image sensing and Acquisition
- Students understood the Image Sampling and Quantization: Basic Concepts in Sampling and Quantization, Representing Digital images, Spatial and intensity resolution
- Students understood the Relationships between pixels: Neighbors of a Pixel, Adjacency, Connectivity, Regions and Boundaries, Distance Measures.
- Students understood the Basic Intensity Transformation: Image Negatives, Log transformation, Power law Transformation, Piecewise Linear Transformation
- Students understood the Histogram processing, Discrete Fourier transform (DFT), DCT, Walsh Hadamard Transform.
- Students got the idea of Mean filters, Non-linear (Order Statistic) spatial filters.
- Students understood the Sharpening spatial Filters Masking, High-Boost Filtering.
- Students got the idea of Image Enhancement by Frequency domain methods.
- Students got the idea of Frequency Domain low pass (Smoothing) and high pass (Sharpening) Filters.
- Students understood the Fundamentals Coding Redundancy, Spatial and Temporal (Interpixel) Redundancy, Irrelevant Information (Psychovisual Redundancy)
- Students understood the Lossless Compression Methods: Huffman coding, LZW coding, Run length coding, Lossy Compression Techniques: Block transform Coding
- Students understood the Image File Formats: BMP, GIF, TIFF
- Students understood the Image Compression Standards: Binary Image Compression Standards, Continuous Tone Still Image Compression Standards
- Students understood the Fundamentals: Point, Line, Edge Detection, Detection of Isolated Points, Line Detection Edge Models, Basic Edge detection, Canny edge detector
- Students understood the Thresholding: Optimal global thresholding, Multiple thresholds, Multivariable Thresholding.
- Students understood the Region-based Segmentation Methods: Region Growing, Region Splitting and Merging,
- Students understood the Segmentation using Morphological watersheds Morphological Image processing: Preliminaries, Erosion and dilation, opening and closing
- Students got the idea of Hit-or-Miss Transformation, Color Image processing: Color Fundamentals and color models, Basics of Full color image processing, Color transformations
- Students understood the Object Recognition: Patterns and pattern Classes



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Department of Computer Science and Engineering

Subject: Computer Network Architecture and Protocol

Subject Code: CSE 341

Class: TE

Course Outcomes (COs)

- Students understood the fundamental concepts of computer networking and functionality of layered network architecture.
- Students understood the wireless and mobile networking concepts
- Students understood the idea of how to apply networking concepts to various situations, classification networks, analyzing performance of computer network infrastructure.
- Students understood how to learn recent development in network like IPv4 & IPv6.
- Students understood the concept of network in internet of things (IOT).
- Students understood and analyze the network problems and learn methods to rectify them.




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Department of Computer Science and Engineering

Subject: Computer Network Architecture and Protocols (Elective-I)

Subject Code: CSE341

Class: TE

Program specific Outcomes (PSOs)

- Students understood the Design issues, IPv4, Problems with IPv4.
- Students understood the strategies to bridge the limitations IP subnetting, CIDR.
- Students understood the DHCP, NAT, Network design with CIDR, IPv6.
- Students understood the Routing algorithms.
- Students got the idea of Unicast protocols: RIP, EIGRP, OSPF
- Students got the idea of Unicast protocols BGP and multicast routing protocols, ICMP, IGMP, DHCP
- Students got the idea of Services, Transport layer protocols,
- Students got the idea of UDP, TCP,
- Students got the idea of SCTP: State Transition diagram, flow control,
- Students got the idea of Unicast protocols error control, socket programming
- Students understood the Design goals, Problems, Architecture and ATM Switching,
- Students understood the ATM layers, Congestion Control and Quality of Service, ATM LAN's, LAN Architecture, LAN Emulation.
- Students understood the client server model.
- Students understood the Link Layer: IEEE 802.
- Students understood the 11 WLAN protocols, CSMA/CA,
- Students understood the Wireless Application Protocol, Routing
- Students got the idea of Protocols & Location Awareness Strategies in Wireless Networks, Resource Students got the idea Allocation management in Wireless Networks, TCP over wireless network.
- Students got the idea of Traditional Applications Telnet, SSH
- Students got the idea of SNMP: SMI, MIB
- Students understood the Multimedia: RTP, RTTP, VOIP, SIP, H.323.




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Department of Computer Science and Engineering

Subject: Programming in JAVA

Subject Code: CSE 304

Class: TE

Course Outcomes (COs)

- Students understood the details of Java programming and its application in real world.
- Students understood the idea of how to apply object oriented features to real time entities.
- Students got the idea of Handle exceptions & implement multithreaded programs.
- Students understood to implement database programming.
- Students understood the idea of Design & implement GUI with event handling
- Students understood the idea of Develop I/O & networking programs.




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Department of Computer Science and Engineering

Subject: Programming in Java


Subject Code: CSE304

Class: TE

Program specific Outcomes (PSOs)

- Students understood the Features of Java, Java Virtual Machine, Byte Code, and JIT Compiler.
- Students understood the Class fundamentals, declaring objects, Nested and Inner Classes, Introducing Methods, Constructors, Garbage Collection.
- Students understood the Overloading Methods, Using Objects as Parameters. Understanding static.
- Students understood the Inheritance Basics, Using Super, Method Overriding, Abstract Classes, Using final keyword with inheritance.
- Students understood the Arrays, Vectors, Strings, Wrapper classes.
- Students understood the Packages: Defining a Package, Finding Packages and CLASSPATH, A Short Package Example, Access Protection, Importing Packages
- Study of java.lang & java.util packages
- Students understood the Interfaces: Defining an Interface, Implementing Interfaces, Variables in Interfaces, Extending Interfaces,
- Students understood the Exception handling fundamentals, Exception Types, Using try-catch, Multiple try-catch clauses, Built-in Exceptions, creating your own exception subclasses.
- Students understood the The Java Thread Model, The Main Thread, Creating a Thread, Creating Multiple Threads,
- Students understood the Introduction, Types of JDBC Drivers , Driver interface & Driver Manager Interface , Statement Interface, Prepared Statement , Result Set,
- Students understood the JDBC Program for executing Statements & processing ResultSet ,Using Prepared Statement
- Students understood the Applet: Applet Basics, An Applet Skeleton, Simple Applet Display Methods, Using the Status Window,
- Students understood the HTML APPLET Tag, Passing Parameters to Applets
- Students understood the Event Handling: The Delegation Event Model, Event Classes, Sources of Events, Event Listener Interfaces, Handling Mouse and Keyboard Events, Adapter Classes
- Students understood the Introduction to AWT, AWT classes, Window, Creating a Frame Window in an Applet, Working with Graphics
- Students understood the Input /Output: I/O Basics, Reading Console Input, Writing Console Output, The Print Writer Class, Reading and Writing Files, The Stream Classes, The Byte Streams, The Character Streams, Object Serialization & deserialization
- Students understood the Networking: Networking Basics, The Networking Classes and Interfaces, TCP/IP Client Sockets, TCP/IP Server Sockets, Datagrams




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Department of Computer Science and Engineering

Subject: DBMS

Subject Code: CSE 303

Class: TE

Course Outcomes (COs)

- To Understand and the different issues in the design and implementation of a Database System.
- To design and build Simple Database system.
- To Learn Relational Model, Relational model constraints and Relational database design using ER to relational mapping.
- To Understand the concept of Relational algebra, SQL Language.
- Student will be able to know the concept of functional Dependencies and Normalization.
- Student will be able to know transaction management, processing.




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Department of Computer Science and Engineering

Subject: Advance java


Subject Code: CSE 351

Class: TE

Course Outcomes (COs)

- To make student to learn the major applications areas of Advance java.
- To get acquainted with the knowledge about web applications design and development using servlet .
- To get acquainted with the knowledge about web application design and development using server pages.
- To make the student acquainted withEJB:
- To make student able to design,development and deploy web services over the internet.
- To make students learn the concept of MVC based applications using struts.




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