



VIDYA JYOTHI
INSTITUTE OF TECHNOLOGY
AN AUTONOMOUS INSTITUTION

COURSE STRUCTURE

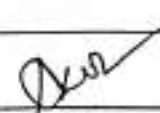
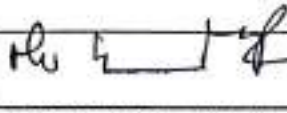
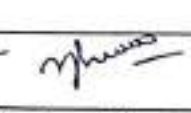
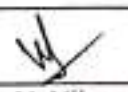
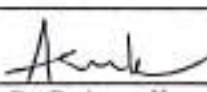
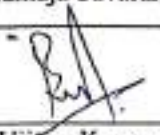
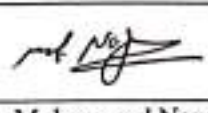
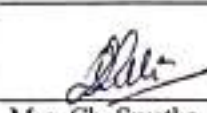
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For

B. Tech. Computer Science & Engineering
(Artificial Intelligence & Machine Learning)


II Year B.Tech. CSE (AI&ML) - I Semester

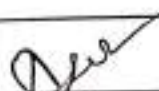
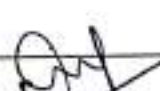
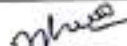
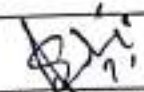
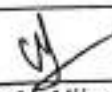
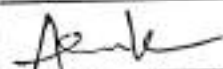
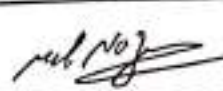
S.No	Category	Course Title	L	T	P	C
1		Probability and statistics	3	1	0	4
2		Data Structures	3	0	0	3
3		Computer System Architecture	3	0	0	3
4		Software Engineering	3	0	0	3
5		Operating Systems	3	0	0	3
6		Data Structures Lab	0	0	2	1
7		Operating Systems Lab	0	0	2	1
8		Skill Development Course (Django)	0	0	2	1
9		Quantitative Methods and Logical Reasoning	2	0	0	1
Total			17	1	6	20

			
Dr. A. Obulesu	Dr. R. Sridevi	Dr. MV. Krishna Murthy	Mr. Prasad Yerramsetti
			
Dr. Padmaja Savaram	Dr. V. Vijaya Kumar	Dr. D. Aruna Kumari	Prof. B. Srinivasulu
			Date of BoS Meeting : 31.03.2023
Dr. B. Vijaya Kumar	Dr. Mohammed Nazeer	Mrs. Ch. Swetha	



II Year B.Tech. CSE (AI&ML) II Semester

S.No	Category	Course Title	L	T	P	Credits
1		Discrete Mathematics	3	0	0	3
2		Automata Theory and Compiler Design	3	0	0	3
3		Database Management Systems	3	0	0	3
4		Introduction to Artificial Intelligence	2	0	0	2
5		Object Oriented Programming through Java	3	0	0	3
6		Database Management Systems Lab	0	0	2	1
7		Object Oriented Programming through Java Lab	0	0	2	1
8		Real-time Research Project	0	0	4	2
9		Skill Development Course (Prolog)	0	0	2	1
10		Professional communication	0	0	2	1
Total			14	0	12	20

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PROBABILITY AND STATISTICS

II Year B.Tech. CSE (AI & ML) I Sem.

Course Code:

L T P C
3 1 0 4

Course Outcomes:

After learning the contents of this course, the students must be able to:

1. To differentiate among random variables involved in the probability models which are useful for all branches of engineering.
2. Derive relationship among variety of performance measures using probability distributions.
3. Acquire elementary knowledge of parametric and non-parametric tests and understand the use of observing state analysis for predicting future conditions.
4. Identify and examine situations that generate using problems and able to solve the tests of ANOVA for classified data and apply proper measurements, Indicators and techniques of Correlation and regression analysis.
5. Identify different types of ques and select appropriate que for different situations.

Unit – I

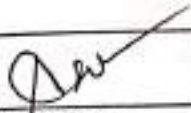
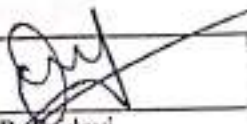
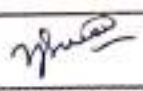
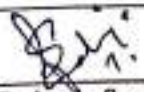
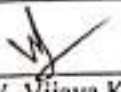
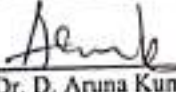
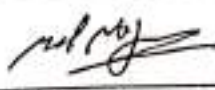
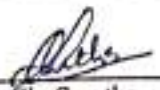
Probability: Probability Distributions, Random Walk, Sample Space, Probability Density Function, Cumulative distribution Function, Independent Events, Mutual Exclusive, Conditional Probability, Joint Probability, Baye's theorem.

Unit – II

Probability Distributions & Testing of Hypothesis I: Fitting of Binomial, Poisson & Normal distributions and their properties (only Statements) Moment Generating Functions, mean and variance.

Testing of hypothesis for single mean and difference of means of large samples.

Confidence interval for the proportions, Tests of hypothesis for the proportions- single and difference between the proportions for large samples.

			
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Unit – III

Testing of hypothesis II: Small Samples - t-distribution, F-Distribution, χ^2 distribution, ANOVA for one-way classified data

Unit – IV

Correlation, Regression & Curve Fitting: Coefficient of Correlation-Regression coefficients- The lines of Regression- The Coefficient of Rank Correlation.

Curve Fitting- Fitting a Straight line- Second Degree Polynomial- Exponential, Power Curve by Method of Least Squares.

Unit – V

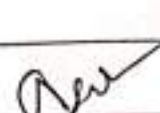
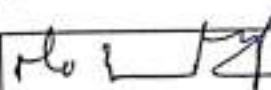
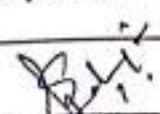
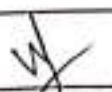
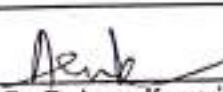
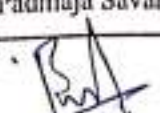
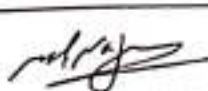
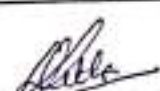
Queuing Theory: Structure of a queuing system, Operating characteristics of queuing system, Transient and steady states, Terminology of Queuing systems, Arrival and service processes- Pure Birth-Death process Deterministic queuing models- M/M/1 Model of infinite queue, M/M/1 model of finite queue.

Text Books:

1. Probability and Statistics for Engineers, by Richard Arnold Johnson, Irvin Miller and John E Freund, New Delhi Prentice
2. Probability and Statistics, by T. K. V. Iyengar others, S. Chand Publications.

References Books:

1. Fundamentals of Mathematical Statistics, by S C Gupta and V K Kapoor, S Chand.
2. Fundamentals of Queuing Theory, by John F Shortle et.al. Fifth Edition, John Wiley & Sons.

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DATA STRUCTURES

II Year B.Tech. CSE (AI –ML) I Sem.

Course Code:

L	T	P	C
3	0	0	3

Course Outcomes:

After learning the contents of this course the students must be able to:

1. Understand the concepts of Stacks and Queues with their applications.
2. Analyze various operations on Binary trees.
3. Examine of various concepts of binary trees with real time applications.
4. Analyze the shortest path algorithm on graph data structures.
5. Outline the concepts of hashing, collision and its resolution methods using hash functions.

Unit - I

Data Structures: Introduction, Types of data structures, Static and Dynamic representation of data structure and comparison.

Stacks: Stacks definition, operations on stacks, Representation and evaluation of expressions using Infix, Prefix and Postfix, Algorithms for conversions and evaluations of expressions from infix to prefix and postfix using stack.

Queues: Types of Queues- Circular Queue, Deque and operations.

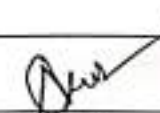
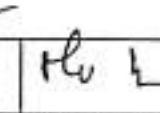
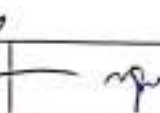
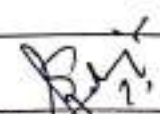
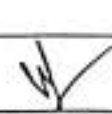
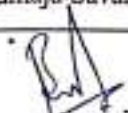
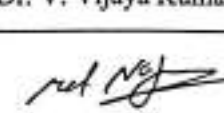
Unit - II

Trees: Basic terminologies, Types of Binary Tree: Complete and Full Binary Tree, Extended Binary Trees, Representation of Trees using Arrays and Linked lists (advantages and disadvantages), Tree Traversal, Representation of Algebraic expressions, Threaded Binary Trees.

Unit - III

Advanced concepts on trees:

Representation and Creation of Binary Search Trees (BST), Operations on BST, Representation and advantages of AVL Trees, algorithms & operations on AVL Trees, Multi-way trees, Definition and advantages of B-trees, B+ Trees, Red-Black Trees.

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Unit - IV

Graphs:

Basic terminology, Representation of graphs: sequential representation, Adjacency, Path Matrix) Linked representation. Graph Traversals-Breadth First Search, Depth First Search algorithms. Spanning Tree, Minimum Spanning Trees- Prim's Algorithm, Kruskals Algorithm, Dijkstra Algorithm.

Unit - V

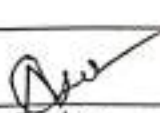
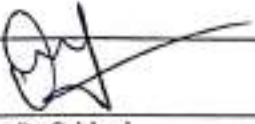
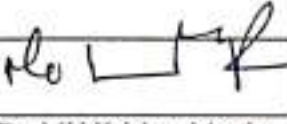
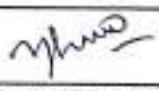
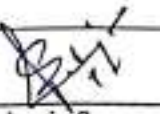
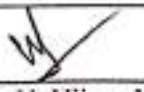
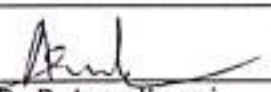
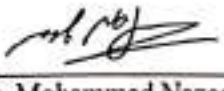
Hashing: General Idea, Hash Functions, collisions, Collision avoidance techniques, Separate Chaining ,Open Addressing-Linear probing, Quadratic Probing, Double Hashing, Rehashing, Extensible Hashing, Implementation of Dictionaries

Text Books:

1. Data Structures Using C, 2nd Edition Reema Thereja OXFORD higher Education
2. Fundamentals of Data Structures, 2nd Horowitz and Sahani, *Galgotia Publications Pvt Ltd* Delhi India.

Reference Books:

1. Data Structures, Seymour Lipschutz, Schaum's Outlines, Tata McGraw-Hill, Special Second Edition.
2. Data Structures Using C and C++, Aaron M. Tenenbaum, YedidyahLangsam and Moshe J. Augenstein PHI Learning Private Limited, Delhi India.
3. Data Structures, A Pseudo code Approach with C, Richard F.Gillberg & Behrouz A. Forouzan, Cengage Learning, India Edition, Second Edition, 2005.

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COMPUTER SYSTEM ARCHITECTURE

II Year B.Tech. CSE(AI&ML) I Sem.

Course Code:

L T P C

3 0 0 3

Course Outcomes:

After learning the contents of this course the students must be able to:

1. Understand the various number System
2. Classify the basics of instruction sets
3. Demonstrate the design of functional units of a digital computer system.
4. Analyze various computer arithmetic operations.
5. Design a pipeline for consistent execution of instruction with minimum hazards

Unit - I

Number Systems: Binary, Octal, Hex Decimal, and Conversions, range; Binary additions and subtractions (using 1c, and 2c), concept of overflow, representations of negative numbers using 1's and 2's complement and range; BCD numbers: Representation of 8421, 2421, Ex-3, Gray and self-complementary codes; additions and subtractions on 8421 codes.

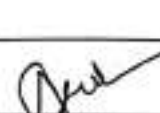
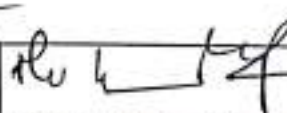
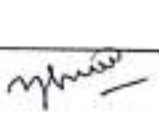
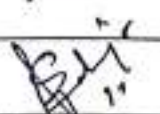
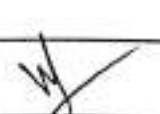
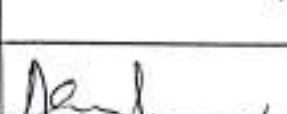
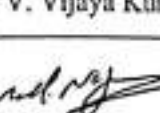
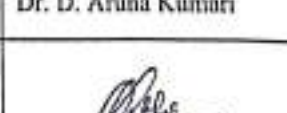
Unit - II

Structure of Computers: Computer types, functional units, basic operational concepts, Von Neumann architecture, bus structures, software, performance, multiprocessors and multicomputer, data representation, fixed and floating point and error detecting codes.

Register Transfer and Micro Operations: Register transfer language, register transfer, bus and memory transfers, arithmetic micro operations, shift microoperations, arithmetic logic shift unit

Unit- III:

Basic Computer Organization and Design: Instruction codes, computer registers, computer instructions, instruction cycle, timing and control, memory reference instructions, input, output and interrupt.

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Central Processing Unit: stack organization, instruction formats, addressing modes, data transfer and manipulation, program control, reduced instruction set computer (RISC).

Unit -IV:

Computer Arithmetic: Addition and subtraction, multiplication and division algorithms, floating point arithmetic operation, decimal arithmetic unit, and decimal arithmetic operations.

UNIT V:

The Memory System:

Basic concepts, semiconductor RAM types of read only memory (ROM), cache memory, performance considerations, virtual memory, secondary storage raid, direct memory access (DMA).

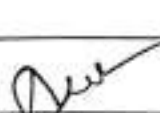
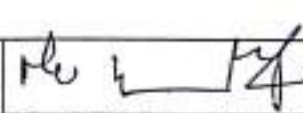
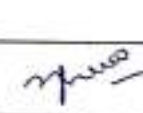
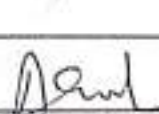
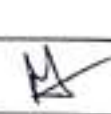
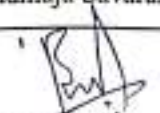
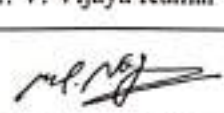
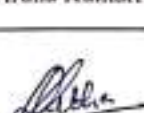
Processor and control unit Basic MIPS implementation Building data path Control Implementation scheme Pipelining Pipelined data path and control Handling Data hazards & Control hazards Exceptions.

Text Book:

1. Computer System Architecture – M. Moris Mano, Third Edition, Pearson/PHI.

Reference Books:

1. Computer Organization – Car Hamacher, Zvonks Vranesic, Safea Zaky, Vth Edition, McGraw Hill.
2. Computer Organization and Architecture – William Stallings Sixth Edition, Pearson/PHI. Structured Computer Organization – Andrew S. Tanenbaum, 4th Edition, PHI/Pearson.

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SOFTWARE ENGINEERING

II Year B.Tech. CSE(AI&ML) I Sem.

Course Code:

L	T	P	C
3	0	0	3

Course Outcomes:

After learning the contents of this course the students must be able to:

1. Outline the framework activities for a given project.
2. Examine Right process model for a given project.
3. Analyze various system models for a given Context.
4. Understand various testing techniques for a given project.
5. Identify various risks in project development.

Unit-I

Introduction to Software Engineering: The evolving role of software, Changing Nature of Software, Software myths.

A Generic view of process: Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), personal and team process models.

Unit -II

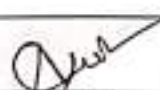
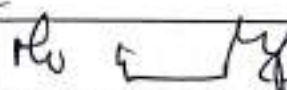
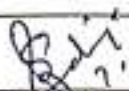
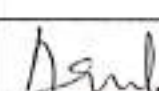
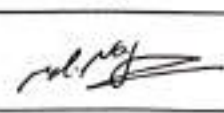
Process Models: The waterfall model, Incremental process models, Evolutionary process model, Unified process model, Agile process model.

Software Requirements: Functional and non-functional requirements, the software requirements document.

Requirements Engineering Process: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.

Unit-III

System models: Context Models, Behavioural models, Data models, Object models, structured methods.

			
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Design Engineering: Design process and Design quality, Design concepts, the design model, Modeling component level design: design class based components, conducting component level design.

User interface design: Golden rules.

Unit- IV

Testing Strategies: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing techniques, Validation testing, System testing.

Product Metrics: Software Quality, Metrics for Requirements Model- function based metrics, Metrics for Design Model-object oriented metrics, class oriented metrics, component design metrics, Metrics for source code, Metrics for Testing, Metrics for maintenance.

Unit -V

Risk Management: Reactive vs. Proactive Risk strategies, software risks, Risk identification, Riskprojection, Risk refinement, RMMM, RMMM Plan.

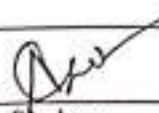
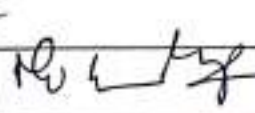
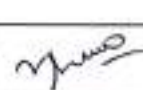
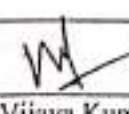
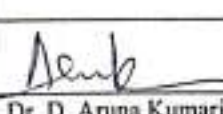
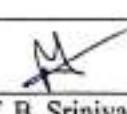
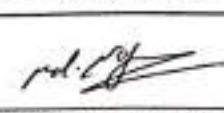
Quality Management: Quality concepts, Software Reviews, Formal technical reviews, Software reliability, The ISO 9000 quality standards.

Text Books:

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 8th edition McGraw Hill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson education.

References Books:

1. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
2. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
3. Systems Analysis and Design- Shely Cashman Rosenblatt, Thomson Publications.

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OPERATING SYSTEM

II Year B.Tech. CSE(AI&ML) I Sem.

L T P C
3 0 0 3

Course Code:

Course Outcomes:

After learning the contents of this course the students must be able to:

1. Understand the basic functions of Operating systems and system calls.
2. Analyze process scheduling and synchronization.
3. Understand the concepts of memory management.
4. Examine the concepts of MASS storage structure
5. Compare different protection methods of OS and understand the deadlock concepts.

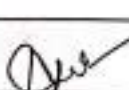
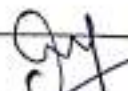
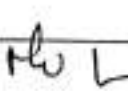
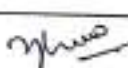
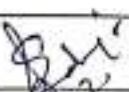
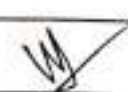
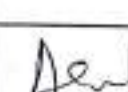
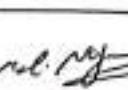
Unit – I:

Operating System Introduction: Operating Systems Objectives and functions, OS Structure, OS Operations, Evolution of Operating Systems - Simple Batch, Multi programmed, time shared, Personal Computer, Parallel, Distributed Systems, Real-Time Systems, Special - Purpose Systems, Operating System services, user OS Interface, System Calls, Types of System Calls, System Programs, Operating System Design and Implementation, Virtual Machines.

Unit – II:

Process and CPU Scheduling: Process concepts - The Process, Process State, Process Control Block, Threads, Process Scheduling - Scheduling Queues, Schedulers, Context Switching, Preemptive Scheduling, Scheduling Criteria, Scheduling algorithms, thread scheduling, Case studies: Linux, Windows.

Process Coordination: Process Synchronization, the Critical section Problem, Peterson's solution, Synchronization Hardware, Semaphores, and Classic Problems of Synchronization, Monitors, Case Studies: Linux, Windows.

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Unit – III:

Memory Management and Virtual Memory: Logical & physical Address Space, Swapping, Contiguous Allocation, Paging, Structure of Page Table, Segmentation, Segmentation with Paging, Virtual Memory, Demand Paging, Performance of Demand Paging, Page Replacement Algorithms, Thrashing.

Unit – IV:

File System Interface: The Concept of a File, Access methods, Directory Structure, File System Mounting, File Sharing, Protection, File System Implementation - File System Structure, File System Implementation, and Allocation methods, Free-space Management, Directory Implementation, Efficiency and Performance.

Mass Storage Structure: Overview of Mass Storage Structure, Disk Structure, Disk Attachment, Disk Scheduling, Disk Management.

Unit – V:

Deadlocks: System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery.

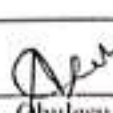
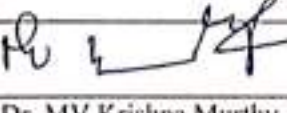
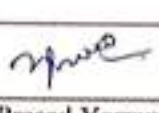
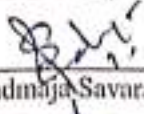
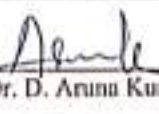
Protection: System Protection, Goals of Protection, Principles of Protection, Domain of Protection, Access Matrix, Implementation of Access Matrix, Access Control, Revocation of Access Rights, Capability-Based Systems, Language-Based Protection.

Text Books:

1. Operating System Principles, Abraham Silberchatz, Peter B. Galvin, Greg Gagne , th Edition, Wiley Student Edition.
2. Operating systems - Internals and Design Principles, W. Stallings, 6th Edition, Pearson.

References Books:

1. Modern Operating Systems, Andrew S Tanenbaum 3rd Edition PHI.
2. Operating Systems A concept - based Approach, 2nd Edition, D. M. Dhamdhare,

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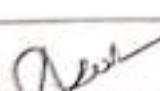
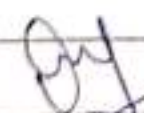
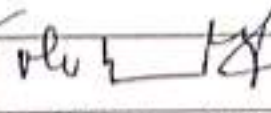
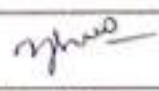
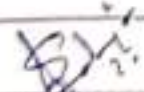
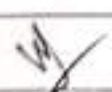
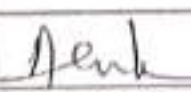


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3. Principles of Operating Systems, B. L. Stuart, Cengage learning, India Edition.

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DATA STRUCTURES LAB

II Year B.Tech. CSE (AI-ML) I Sem.

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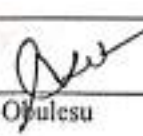
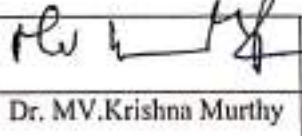
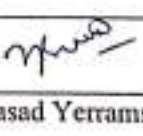
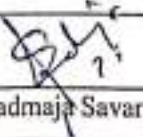
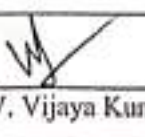
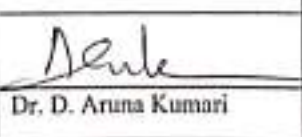
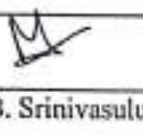
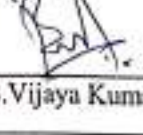
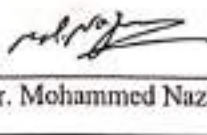
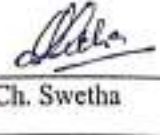
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Course Outcomes:

1. Develop the programs on stacks and its applications.
2. Design and implementation of programs on Linked lists and Tree Traversals.
3. Apply Tree Concepts on advanced Trees
4. Implement Graph and its Traversing techniques
5. Apply Hashing techniques in real world applications

List of Experiments:

1. C Programs to illustrate concepts of arrays, structures, unions and enumerated data types.
2. Write a Program to implement stack, queue using linked list
3. Program to convert infix to postfix notation
4. Program to evaluate postfix notations
5. Write a program to implement doubly linked list and its operations
6. Program to illustrate tree traversals
 - a) In order
 - b) Pre order
 - c) Post order
7. Program to illustrate insertion, deletion and searching in Binary Search Tree.
8. Program to illustrate Insertion, deletion and Rotation on AVL Trees.
9. Program to illustrate Graph traversals
 - i. Breadth First Search
 - ii. Depth First Search
10. Program to implement hash table using linear and quadratic probing.

			
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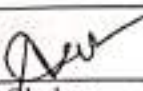
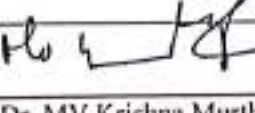
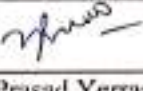
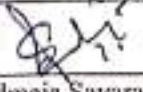
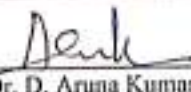
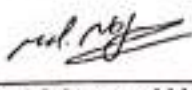
11. Implement Dictionaries using hashing.

Text Books:

1. Fundamentals of Data Structures in C, 2nd Edition, E. Horowitz, S. Sahni and Susan Anderson Freed, Universities Press.
2. Data Structures using C – A. S. Tanenbaum, Y. Langsam, and M. J. Augenstein, PHI/Pearson Education.

Reference Books:

1. Data Structures: A Pseudocode Approach with C, 2nd Edition, R. F. Gilberg and B. A. Forouzan, Cengage Learning.

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OPERATING SYSTEMS LAB

II Year B.Tech. CSE(AI&ML) I Sem.

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Course Code:

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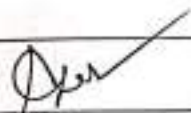
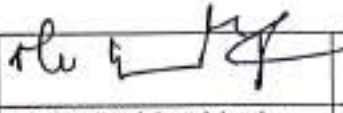
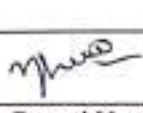
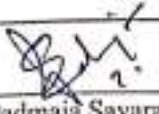
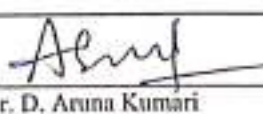
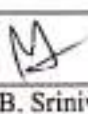
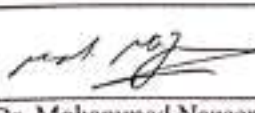
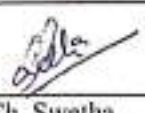
Course Outcomes:

After learning the contents of this course, the students must be able to:

1. Simulate and implement operating system concepts such as scheduling, dead lock management, file management and memory management.
2. Able to implement C programs using Unix system calls
3. Comprehensive knowledge on page replacement algorithms

List of Experiments:

1. Simulate the following CPU Scheduling Algorithms using C program:
a. FCFS b. SJF
2. Simulate the following CPU Scheduling Algorithms using C program:
a. Priority b. Round Robin
3. Write a C program to implement the producer-consumer problem using semaphores.
4. Write a C program for implementing memory allocation method for fixed partition using First fit.
5. Write a C program for implementing memory allocation method for fixed partition using Best fit
6. Write a C program for implementing memory allocation method for fixed partition using Worst fit
7. Simulate Paging Technique of Memory Management using C program.
8. Write a program to implement FCFS page replacement algorithm
9. Write a program to implement Optimal page replacement algorithm
10. Write a program to implement LRU page replacement algorithm
11. Write a C program to simulate the following file allocation strategies.
a) Sequential b) Indexed c) Linked
12. Write a program to implement Banker's algorithm for deadlock avoidance.

			
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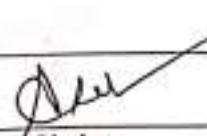
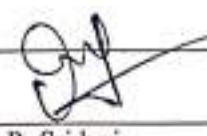
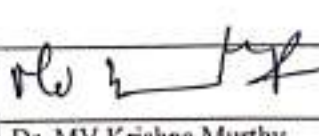
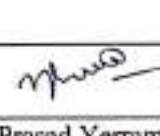
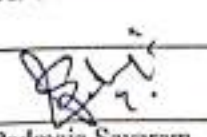
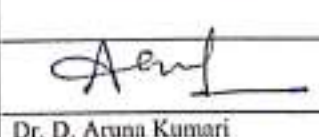
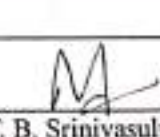
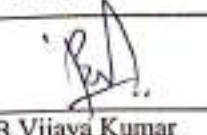
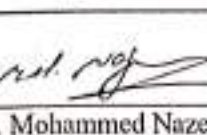
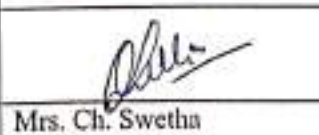


Text Books:

1. Operating System Principles- Abraham Silberchatz, Peter B. Galvin, Greg Gagne 7th Edition, John Wiley
2. Advanced programming in the Unix environment, W.R.Stevens, Pearson education.

Reference Books:

1. Operating Systems – Internals and Design Principles, William Stallings, Fifth Edition–2005, Pearson Education/PHI
2. Operating System - A Design Approach-Crowley, TMH.
3. Modern Operating Systems, Andrew S Tanenbaum, 2nd edition, Pearson/PHI
4. UNIX Programming Environment, Kernighan and Pike, PHI/Pearson Education
UNIX Internals: The New Frontiers, U. Vahalia, Pearson

			
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SKILL DEVELOPMENT COURSE - DJANGO

II Year B.Tech. CSE(AI&ML) I Sem.

Course Code: A224598

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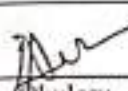
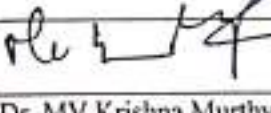
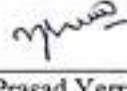
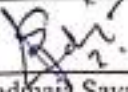
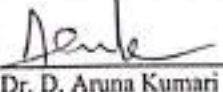
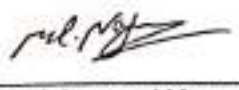
Course Outcomes:

At the end of the course, the student will be able to,

1. Build a blog with HTML, CSS, and Bootstrap and little JavaScript.
2. Demonstrate Advanced features of JavaScript and learn about JDBC
3. Design a django application for cookies and forms and admin page

List of Experiments

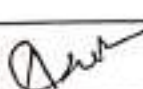
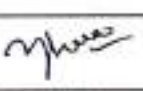
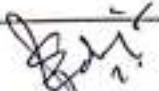
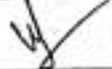
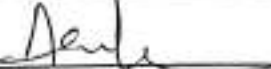
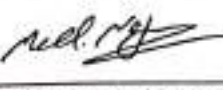
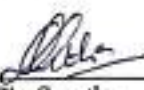
1. Create a static web blog using html, css
2. Create a web calculator using Html, bootstrap and javaScript
3. Create a website which store contact in session storage and perform curd operation
4. Design a website using html, css, javascript and django
5. Develop a application to perform curd operations in sqlite (Ex: Todo App)
6. Design a login page and signup page to login into the website using django authentication
7. Develop a multi-page web application using django
8. Create a web application for shopping cart with registration, login, catalog and cart pages.
9. Add a customized admin page to add new products to the catalog using django
10. Create a application which fetches the data from a rest api and display the data using the Chart.js in django use cookies and Http sessions
11. Create a django application which uses generic views and forms

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 Dr. B. Vijaya Kumar	 Dr. Mohammed Nazeer	 Mrs. Ch. Swetha	Date of BoS Meeting : 31.03.2023



II Year B.Tech. CSE(AI&ML) II Sem.

S.No	Category	Course Title	L	T	P	Credits
1		Discrete Mathematics	3	0	0	3
2		Automata Theory and Compiler Design	3	0	0	3
3		Database Management Systems	3	0	0	3
4		Introduction to Artificial Intelligence	2	0	0	2
5		Object Oriented Programming through Java	3	0	0	3
6		Database Management Systems Lab	0	0	2	1
7		Object Oriented Programming through Java Lab	0	0	2	1
8		Real-time Research Project	0	0	4	2
9		Skill Development Course (Prolog)	0	0	2	1
10		Professional communication	0	0	2	1
Total			14	0	12	20

			
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DISCRETE MATHEMATICS

II Year B.Tech. CSE(AI&ML) II Sem.

Course Code:

L T P C
3 0 0 3

Course Outcomes:

1. Understand and construct precise mathematical proofs
2. Apply logic and set theory to formulate precise statements
3. Analyze and solve counting problems on finite and discrete structures
4. Describe and manipulate sequences
5. Apply graph theory in solving computing problems

Unit - I

Mathematical logic: Introduction, Statements and Notation, Connectives, Normal Forms, Theory of Inference for the Statement Calculus, The Predicate Calculus, Inference Theory of the Predicate Calculus.

Unit - II

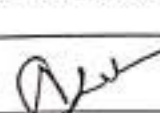
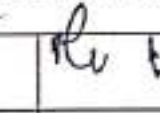
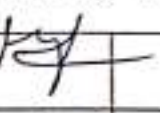
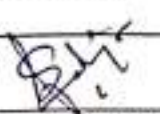
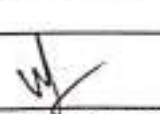
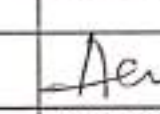
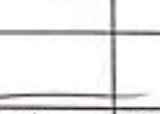
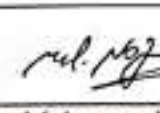
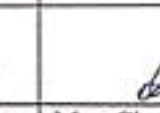
Set theory: Introduction, Basic Concepts of Set Theory, Representation of Discrete Structures, Relations and Ordering, Functions.

Unit - III

Algebraic Structures: Introduction, Algebraic Systems, Semi groups and Monoids, Lattices as Partially Ordered Sets, Boolean Algebra.

Unit - IV

Elementary Combinatorics: Basics of Counting, Combinations and Permutations, Enumeration of Combinations and Permutations, Enumerating Combinations and Permutations with Repetitions, Enumerating Permutation with Constrained Repetitions, Binomial Coefficient, The Binomial and Multinomial Theorems, The Principle of

			
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Exclusion.

Unit - V

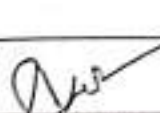
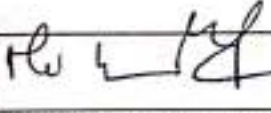
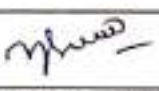
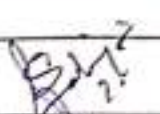
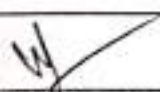
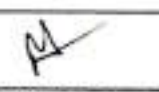
Graph Theory: Basic Concepts, Isomorphism and Subgraphs, Trees and their Properties, Spanning Trees, Directed Trees, Binary Trees, Planar Graphs, Euler's Formula, Multi-graphs and Euler Circuits, Hamiltonian Graphs, Chromatic Numbers, The Four-Color Problem.

Text Books:

1. Discrete Mathematical Structures with Applications to Computer Science: J.P. Tremblay, R. Manohar, McGraw-Hill, 1st ed.
2. Discrete Mathematics for Computer Scientists & Mathematicians: Joe I. Mott, Abraham Kandel, Theodore P. Baker, Prentis Hall of India, 2nd ed.

Reference Books:

1. Discrete and Combinatorial Mathematics - an applied introduction: Ralph.P. Grimald, Pearson education, 5th edition.
2. Discrete Mathematical Structures: Thomas Kosy, Tata McGraw Hill publishing co.

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AUTOMATA THEORY AND COMPILER DESIGN

II Year B.Tech. CSE(AI&ML) II Sem.

Course Code:

L T P C
3 0 0 3

Course Outcomes:

After learning the contents of this course the students must be able to:

1. Able to employ finite state machines for modeling and solving computing problems.
2. Able to design context free grammars for formal languages.
3. Able to distinguish between decidability and undecidability.
4. Demonstrate the knowledge of patterns, tokens & regular expressions for lexical analysis.
5. Acquire skills in using lex tool and design LR parsers

Unit – I :

Introduction to Finite Automata: Structural Representations, Automata and Complexity, the Central Concepts of Automata Theory – Alphabets, Strings, Languages, Problems.

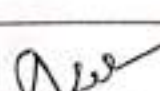
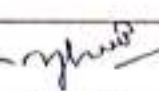
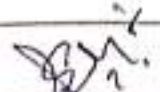
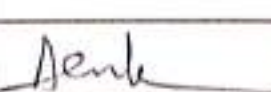
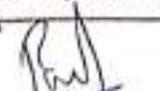
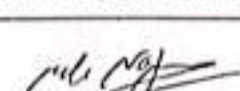
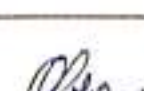
Nondeterministic Finite Automata: Formal Definition, an application, Text Search, Finite Automata with Epsilon-Transitions.

Deterministic Finite Automata: Definition of DFA, How A DFA Process Strings, The language of DFA, Conversion of NFA with ϵ -transitions to NFA without ϵ -transitions. Conversion of NFA to DFA

UNIT – II:

Regular Expressions: Finite Automata and Regular Expressions, Applications of Regular Expressions, Algebraic Laws for Regular Expressions, Conversion of Finite Automata to Regular Expressions.

Pumping Lemma for Regular Languages: Statement of the pumping lemma, Applications of the Pumping Lemma.

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Context-Free Grammars: Definition of Context-Free Grammars, Derivations Using a Grammar, Leftmost and Rightmost Derivations, the Language of a Grammar, Parse Trees, Ambiguity in Grammars and Languages.

Unit – III :

Push Down Automata: Definition of the Pushdown Automaton, the Languages of a PDA, Equivalence of PDA and CFG's, Acceptance by final state

Turing Machines: Introduction to Turing Machine, Formal Description, Instantaneous description, The language of a Turing machine

Undecidability: Undecidability, A Language that is Not Recursively Enumerable, An Undecidable Problem That is RE, Undecidable Problems about Turing Machines

Unit – IV :

Introduction: The structure of a compiler, Lexical Analysis: The Role of the Lexical Analyzer, Input Buffering, Recognition of Tokens, The Lexical- Analyzer Generator Lex

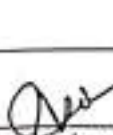
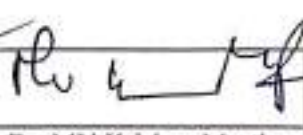
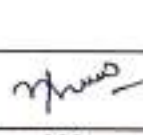
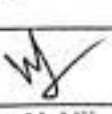
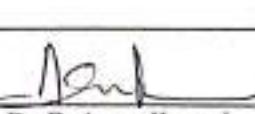
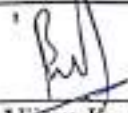
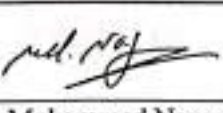
Syntax Analysis: Introduction, Context-Free Grammars, Writing a Grammar, Top-Down Parsing, Bottom- Up Parsing, Introduction to LR Parsing: Simple LR, More Powerful LR Parsers.

Unit – V :

Syntax-Directed Translation: Syntax-Directed Definitions, Evaluation Orders for SDD's, Syntax-Directed Translation Schemes, Implementing L-Attributed SDD's.

Intermediate-Code Generation: Variants of Syntax Trees, Three-Address Code

Run-Time Environments: Stack Allocation of Space, Access to Nonlocal Data on the Stack, Heap Management

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 Dr. B. Vijaya Kumar	 Dr. Mohammed Nazeer	 Mrs. Ch. Swetha	Date of BoS Meeting : 31.03.2023

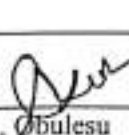
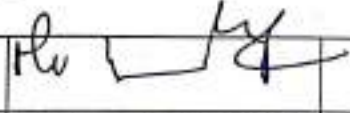
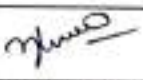
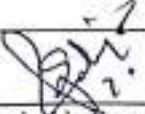
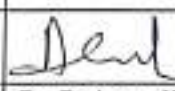
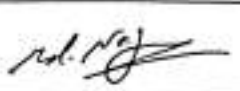


Text Books:

1. Introduction to Automata Theory, Languages, and Computation, 3rd Edition, John E. Hopcroft, Rajeev Motwani, Jeffrey D. Ullman, Pearson Education.
2. Theory of Computer Science – Automata languages and computation, Mishra and Chandrashekar, 2nd Edition, PHI.

Reference Books:

1. Compilers: Principles, Techniques and Tools, Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman, 2nd Edition, Pearson.
2. Introduction to Formal languages Automata Theory and Computation, Kamala Krithivasan, Rama R, Pearson.
3. Introduction to Languages and The Theory of Computation, John C Martin, TMH.
4. lex & yacc – John R. Levine, Tony Mason, Doug Brown, O'reilly Compiler Construction, Kenneth C. Loudon, Thomson. Course Technology.

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DATABASE MANAGEMENT SYSTEMS

II Year B.Tech. CSE(AI&ML) II Sem

Course Code:

L T P C
3 0 0 3

Course Outcomes:

At the end of the course student would be able to

1. Understand the concepts of Entity-Relationship Model for enterprise level databases.
2. Analyze the database and provide restricted access to different users of database.
3. Understand various Normal forms to carry out schema refinement.
4. Analyze various Concurrency control protocols.
5. Understand working principles of Recovery algorithms

Unit-I:

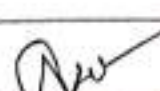
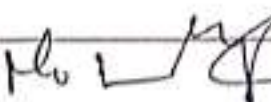
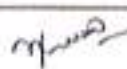
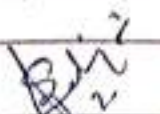
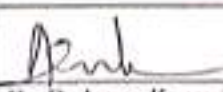
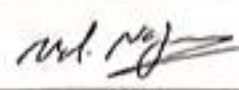
Introduction to Database System Concepts: Database-System Applications, Purpose of Database Systems, View of data, Database Language, Database Architecture, Database Users and Administrators.

Introduction to the Relation Models and Database Design using ER Model: Overview of the Design Process, The Entity-Relationship Model, Constraints, Entity-Relationship Diagrams, Reduction to Relational Schemas, Entity-Relationship Design Issues, Extended E-R Feature, Structure of relational databases , database schema.

Unit-II:

Introduction to SQL: Overview of the SQL Query Language, SQL Data Definition, Basic Structure of SQL Queries, Additional Basic Operations, Set Operations, Null Values, Aggregate Functions Nested Sub queries, Modification of the Database.

Intermediate and Advanced SQL: Join Expressions, Views, Integrity Constraints, SQL Data Types, Authorization. Functions and Procedures, Triggers.

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Unit-III:

Formal Relational Query Languages: The Relational operations, The Tuple Relational Calculus, The Domain Relational Calculus.

Relational Database Design: Features of Good Relational Designs, Atomic Domains and First Normal Form, Decomposition Using Functional Dependencies, Decomposition Using Multi valued Dependencies, BCNF.

Unit-IV:

Transactions: Transaction Concept, a Simple Transaction Model, Storage Structure, Transaction Atomicity and Durability, Transaction Isolation, Serializability, Transaction Isolation and Atomicity.

Concurrency Control: Lock-Based Protocols, Deadlock Handling, Timestamp- Based Protocols, Validation based protocols.

Unit-V:

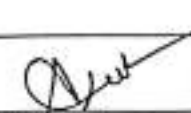
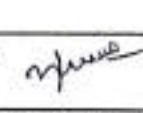
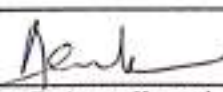
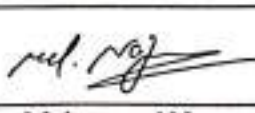
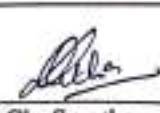
Recovery System: Failure Classification, Recovery and Atomicity, Recovery Algorithm, Buffer Management, Failure with Loss of Nonvolatile Storage, ARIES, Remote Backup Systems.

Text Books:

1. Abraham Silberschatz, Henry F. Korth, S.Sudarshan, Database System Concepts, 6th Edition, Tata McGraw-Hill.
2. Raghu Ramakrishna, Johannes Gehrke, ITataMcGrawHill 3rd Edition.

Reference Books:

1. Peter Rob & Carlos Coronel Database System Concepts Cengage Learning.
2. Ramez Elmasri, Shamkant B. Navate—Fundamentals of Database Systems 7th Edition, Pearson Education.
3. C.J. Date Introduction to Database Systems Pearson Education

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INTRODUCTION TO ARTIFICIAL INTELLIGENCE

II Year B.Tech. CSE(AI & ML) II Sem.

Course Code:

L T P C

2 0 0 2

Course Outcomes:

At the end of the course student would be able to

1. Understand the basic concepts and environment of Artificial intelligence.
2. Analyse various uniformed and informed search algorithm related to artificial intelligence.
3. Design various simple and complex networks with real time applications.
4. Analyse the basic principles Markov Decision with real time applications.
5. Illustrate various types of Reinforcement Learning.

Unit – I :

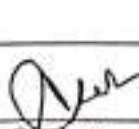
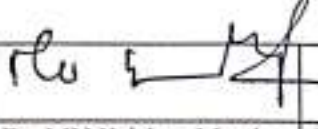
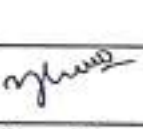
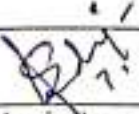
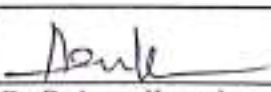
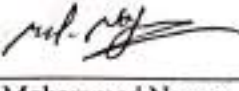
Concept of AI, History, Current Status, Scope, Intelligent Agents, Environments, Problem Formulations, Review of Tree and Graph Structures, State Space Representation, Search Graph and Search Tree.

Unit – II :

Uninformed and Informed Search Algorithms: Random search, Search with closed and open list, Depth first and Breadth first search, Heuristic search : Generate & Test, Hill Climbing, Best first search, A* algorithm, Game Search, Alpha-Beta Pruning Genetic Algorithm

Unit – III :

Probabilistic Reasoning : Probability, Conditional Probability, Bayes Rule, Bayesian Networks- Representation, Construction and Inference, Temporal Model, Hidden Markov Model, Dynamic Bayesian networks (DBN), Natural Language Processing using HMM

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Unit – IV :

Markov Decision Process, MDP Formulation, Utility Theory, Utility Functions, Value Iteration, Policy Iteration and Partially Observable MDPs.

Unit – V :

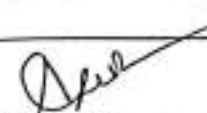
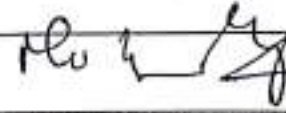
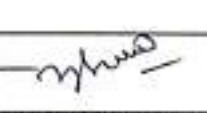
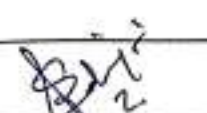
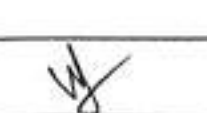
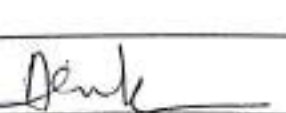
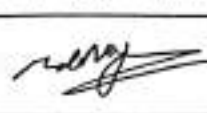
Reinforcement Learning : Passive Reinforcement Learning, Direct Utility Estimation, Adaptive dynamic Programming, Temporal Difference Learning, Active Reinforcement Learning- Q Learning.

Text Books:

1. Stuart Russell and Peter Norvig, "Artificial Intelligence: A Modern Approach", 3rd Edition, Prentice Hall
2. Elaine Rich and Kevin Knight, "Artificial Intelligence", Tata McGraw Hill

Reference Books:

1. Trivedi, M.C., "A Classical Approach to Artificial Intelligence", Khanna Publishing House, Delhi.
2. Saroj Kaushik, "Artificial Intelligence", Cengage Learning India, 2011

			
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OBJECT ORIENTED PROGRAMMING THROUGH JAVA

II YEAR B.Tech. CSE(AI & ML) II Sem.

L T P C
3 0 0 3

Course Code:

Course Outcomes:

At the end of the course student would be able to

1. Understand OOP concepts to apply basic Java constructs.
2. Analyze different forms of inheritance and usage of Exception Handling
3. Understand the different kinds of file I/O and Multithreading in complex Java programs, and usage of Container classes
4. Contrast different GUI layouts and design GUI applications
5. Construct a full-fledged Java GUI application, and Applet with database connectivity

Unit - I

Java Basics: History of Java, Java buzzwords, data types, variables, scope and life time of variables, arrays, operators, expressions, control statements, type conversion and casting, simple java program Fundamentals of Object Oriented Programming:

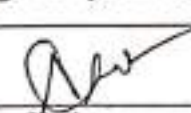
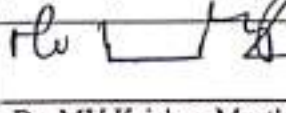
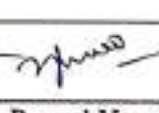
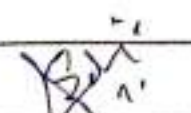
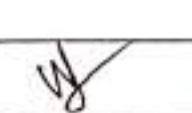
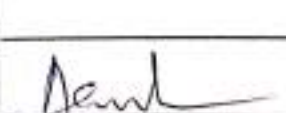
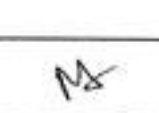
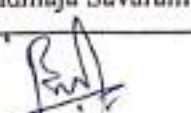
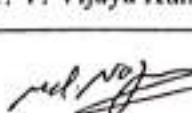
Object-Oriented Paradigm: Basic Concepts of Object Oriented Programming, Applications of OOP. Concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods and constructors, parameter passing, recursion, static keyword, nested and inner classes, Strings, Object class.

Unit - II :

Inheritance & Polymorphism: Introduction, Forms of Inheritance - specialization, specification, construction, extension, limitation, combination, Member access rules, super keyword, polymorphism- method overriding, abstract classes, final keyword.

Interfaces and Packages: Introduction to Interfaces, differences between abstract classes and interfaces, multiple inheritance through interfaces, Creating and accessing a package, Understanding CLASSPATH, importing packages.

Exception handling: Concepts of exception handling, exception hierarchy, built in exceptions, usage of try, catch, finally, throw, and throws, creating own exception sub classes.

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Unit – III :

Files: Introduction to I/O Streams: Byte Streams, Character Streams. File I/O.

Multi-threading: Differences between multi-threading and multitasking, thread life cycle, creating threads, thread priorities, synchronizing threads, inter thread communication.

Java.util package- Collection Interfaces: List, Map, Set. The Collection classes: LinkedList, HashMap, TreeSet, StringTokenizer, Date, Random, Scanner.

Unit – IV:

AWT: Class hierarchy, Component, Container, Panel, Window, Frame, Graphics. AWT controls:

Labels, Button, Scrollbar, Text Components, Checkbox, CheckboxGroup, Choice, List, Panes –ScrollPane, Dialog and Menu Bar.

Event Handling:

Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes.

Unit – V :

Layout Manager: Border, Grid, Flow, Card and Gridbag.

Applets: Concepts of Applets, life cycle of an applet, creating applets, passing parameters to applets.

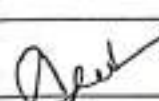
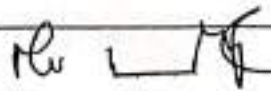
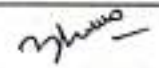
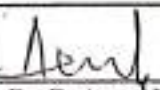
JDBC Connectivity: JDBC Type 1 to 4 Drivers, connection establishment, Query Execution.

Text Books:

1. Java- the complete reference, Seventh edition, Herbert Schildt, Tata McGraw Hill.
2. Database Programming with JDBC & JAVA, Second Edition, George Reese, O'Reilly Media.

Reference Books:

1. Programming in JAVA, Second Edition, OXFORD Higher Education.
2. Thinking in Java Fourth Edition, Bruce Eckel
3. Introduction to Java programming, Y. Daniel Liang, Pearson Education.
4. Understanding OOP with Java, updated edition, T. Budd, Pearson Education.

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DATABASE MANAGEMENT SYSTEMS LAB

II Year B.Tech. CSE (AI&ML) II Sem.

Course Code:

L T P C
0 0 2 1

Course Outcomes:

At the end of the course student would be able to

1. Use the SQL commands such as DDL, DML, DCL, TCL to create, manipulate, access data from database objects and providing authorization to access database by different users.
2. To apply various integrity Constraints on the database tables for preserving the integrity of the database.
3. Design and implement PL/SQL programs which includes procedures, functions, cursor and triggers.

1. **Database Schema for a customer-sale scenario**
Customer (Cust id : integer, cust_name: string)
Item (Item_id: integer, item_name: string, price: integer)

Sale (bill_no: integer, bill_data: date, cust_id: integer, item_id: integer, qty sold: integer)

For the above schema, perform the following—

- a. Create the tables with the appropriate integrity constraints
- b. Insert around 10 records in each of the tables
- c. List all the bills for the current date with the customer names and item numbers
- d. List the total Bill details with the quantity sold, price of the item and the final amount
- e. List the details of the customer who have bought a product which has a price > 200
- f. Give a count of how many products have been bought by each customer

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- g. Give a list of products bought by a customer having cust_id as 5
h. List the item details which are sold as of today
i. Create a view which lists out the bill_no, bill_date, cust_id, item_id, price, qty_sold, amount Create a view which lists the daily sales date wise for the last one week.

2. Database Schema for a Student Library scenario

Student (Stud_no : integer, Stud_name: string) Membership (Mem_no: integer, Stud_no: integer) Book (book_no: integer, book_name: string, author: string) Iss_rec (iss_no: integer, iss_date: date, Mem_no: integer, book_no: integer)

For the above schema, perform the following

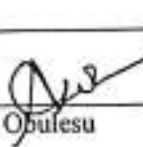
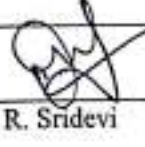
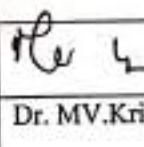
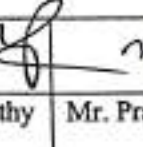
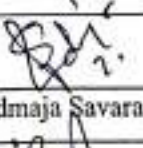
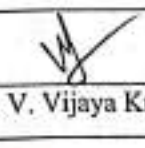
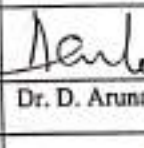
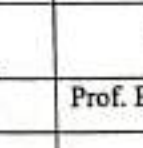
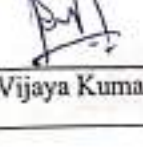
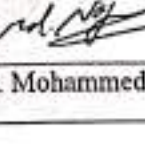
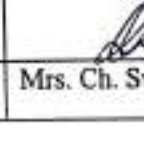
- a. Create the tables with the appropriate integrity constraints
b. Insert around 10 records in each of the tables
c. List all the student names with their membership numbers
d. List all the issues for the current date with student and Book names
e. List the details of students who borrowed book whose author is CJD DATE
f. Give a count of how many books have been bought by each student
g. Give a list of books taken by student with stud_no as 5
h. List the book details which are issued as of today
i. Create a view which lists out the iss_no, iss_date, stud_name, book name
j. Create a view which lists the daily issues-date wise for the last one week.

3. Database Schema for Employee-pay scenario

Employee (emp_id: integer, emp_name: string) Department (dept_id: integer, dept_name: string) paydetails (emp_id : integer, dept_id: integer, basic: integer, deductions: integer, additions: integer, DOJ: date)

Payroll (emp_id: integer, pay date: date) For the above schema, perform the following

1. Create the tables with the appropriate integrity constraints

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2. Insert around 10 records in each of the tables
3. List the employee details department wise
4. List all the employee names who joined after particular date
5. List the details of employees whose basic salary is between 10,000 and 20,000
6. Give a count of how many employees are working in each department
7. Give a names of the employees whose netsalary>10,000
8. List the details for an employee_id=5
9. Create a view which lists out the emp_name, department, basic, dedeuctions, netsalary
10. Create a view which lists the emp_name and his netsalary

4. Database Schema for a Video Library scenario

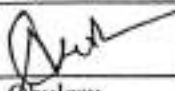
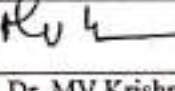
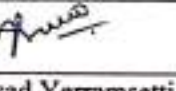
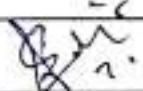
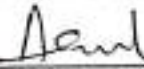
Customer(cust_no: integer, cust_name: string) Membership(Mem_no: integer, cust_no: integer) Cassette(cass_no:integer, cass_name:string, Language: String) Iss_rec(iss_no: integer, iss_date: date, mem_no: integer, cass_no: integer)

For the above schema, perform the following

- a. Create the tables with the appropriate integrity constraints
- b. Insert around 10 records in each of the tables
- c. List all the customer names with their membership numbers
- d. List all the issues for the current date with the customer names and cassette names
- e. List the details of the customer who has borrowed the cassette whose title is — The LegendI
- f. Give a count of how many cassettes have been borrowed by each customer
- g. Give a list of book which has been taken by the student with mem_no as 5
- h. List the cassettes issues for today
- i. Create a view which lists outs the iss_no, iss_date, cust_name, cass_name
- j. Create a view which lists issues-date wise for the last one week.

5. Database Schema for a student-Lab scenario

Student(stud_no: integer, stud_name: string, class: string) Class (class: string,descrip: string)Lab(mach_no: integer, Lab no: integer, description:

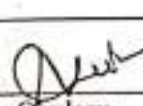
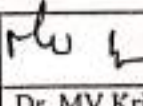
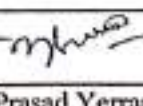
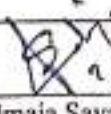
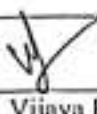
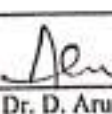
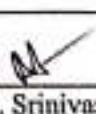
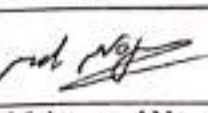
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String) Allotment (Stud_no: Integer, mach_no: Integer, day of week: string)

For the above schema, perform the following

- Create the tables with the appropriate integrity constraints
 - Insert around 10 records in each of the tables
 - List all the machine allotments with the student names, lab and machine numbers
 - List the total number of lab allotments day wise
 - Give a count of how many machines have been allocated to the 'IT' class
 - Give a machine allotment details of the stud_no 5 with his personal and class details
 - Count for how many machines have been allocated in Lab_no 1 for the day of the week as
—Monday!
 - How many students class wise have allocated machines in the labs
 - Create a view which lists out the stud_no, stud_name, mach_no, lab_no, dayofweek
 - Create a view which lists the machine allotment details for —Thursday!g salary > 50000.
- Create a procedure to find reverse of a given number
 - Create a procedure to update the salaries of all employees as per the given data
 - Create a procedure to demonstrate IN, OUT and INOUT parameters
 - Create a function to check whether given string is palindrome or not.
 - Create a function to find sum of salaries of all employees working in depart number 10.
 - Create a trigger before/after update on employee table for each row/statement.
 - Create a trigger before/after delete on employee table for each row/statement.
- Create a trigger before/after insert on employee table for each row/statement

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OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB

II Year B.Tech. CSE (AI&ML) II Sem.

Course Code:

L	T	P	C
0	0	2	1

Course Outcomes:

1. Apply basic Java constructs and OOP to solve mathematical problems.
2. Apply Inheritance in Java programs and Analyze Exception Handling code
3. Implement File input/output and multithreading concepts in advanced Java programs.
4. Design different GUI applications using GUI layouts.
5. Apply Applet development and Database connectivity to build GUI applications

Week 1 & 2

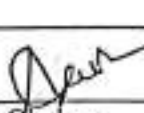
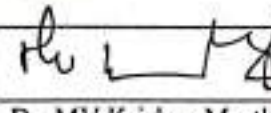
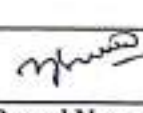
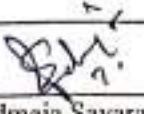
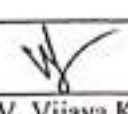
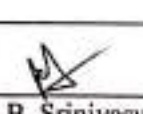
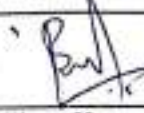
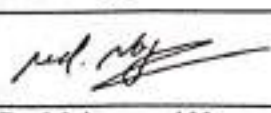
1. Write a program to find total, average of given two numbers by using function with command-line arguments, static data members.
2. Write a program to illustrate class and objects.
3. Write a program to illustrate method & constructor overloading.
4. Write a program to illustrate parameter passing using objects.
5. Write a program to illustrate Array Manipulation.

Week 3

1. Write a program to illustrate different types of inheritances.
2. Write a java program to illustrate Method overriding.
3. Write a java program to demonstrate the concept of polymorphism (Dynamic MethodDispatch).
4. Write a program to demonstrate final keyword.

Week 4 & 5

1. Write a program to illustrate the use of creation of packages.
2. Write a java program to handle the situation of exception handling using multiple catchblocks.
3. Write a program to implement the concept of User defined Exceptions.

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Week 6 & 7

1. Write a program to illustrate Multithreading and Multitasking.
2. Write a program to illustrate thread priorities.
3. Write a program to illustrate Synchronization

Week 8 & 9:

1. Write a program to implement StringTokenizer.
2. Write a program to read one line at a time, and write it to another file.

Week 10 & 11

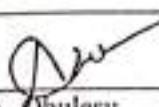
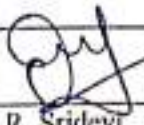
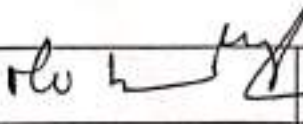
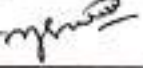
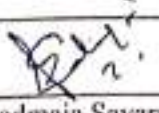
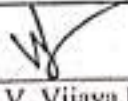
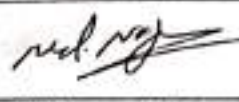
1. Write a program to illustrate Event Handling (keyboard, Mouse events)
2. Write a program to illustrate applet life cycle and parameter passing.

Week 12:

1. Write a program to develop a calculator application using AWT.

Week 13

1. Write a program to illustrate JDBC.

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REAL-TIME RESEARCH PROJECT

II Year B.Tech. CSE(AI&ML) – II Sem.

L T P C

Course Code:

0 0 4 2

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

1. Understand market and industries deeply
2. Able to solve problems with the leanest available solution
3. Self-learning through practical applications
4. Predict a timeline for the project
5. Evaluate the requirements of the projects in terms of different subsystems

The objective of a real-time research project can vary depending on the specific topic and context.

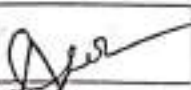
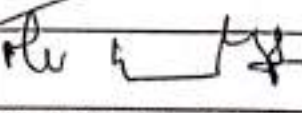
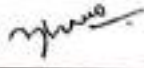
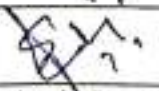
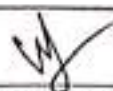
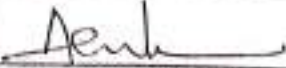
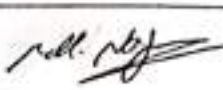
However, in general, the objective of a real-time research project is to gather and analyse data in a timely manner to provide insights and inform decision-making in a rapidly changing situation.

Real-time research projects often focus on current events, trends, or phenomena that require timely and accurate analysis to inform immediate action or decision-making. The objective of such projects is to collect and analyze data in real-time or near real-time, and to present findings and insights quickly and effectively.

Examples of objectives for real-time research projects include:

- Monitoring and analyzing social media trends to inform a marketing campaign.
- Tracking and analyzing stock market data to inform investment decisions.
- Gathering and analyzing public health data to inform responses to a disease outbreak.
- Monitoring and analyzing political polls to inform election campaigns.
- Collecting and analyzing customer feedback to inform product development.

In all of these cases, the objective of the real-time research project is to provide timely and accurate information to support decision-making and achieve the desired outcome.

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SKILL DEVELOPMENT COURSE (PROLOG)

B.Tech. CSE(AI&ML) II Sem.

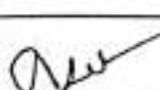
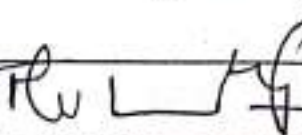
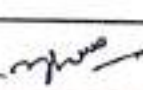
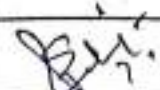
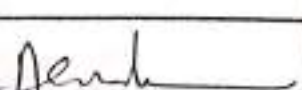
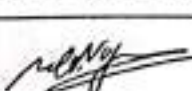
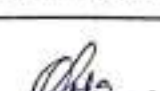
L T P C

Course Code:

0 0 2 1

List of Programs:

1. Write simple fact for following:
 - A. Ram likes mango.
 - B. Seema is a girl.
 - C. Bill likes Cindy.
 - D. Rose is red.
 - E. John owns gold
2. Write predicates one converts centigrade temperatures to Fahrenheit, the other checks if a temperature is below freezing.
3. Write a program to solve the Monkey Banana problem
4. WAP in turbo prolog for medical diagnosis and show the advantages and disadvantages of green and red cuts.
5. Write a program to solve the 4-Queen problem.
6. Write a program to solve traveling salesman problems.
7. Write a program to solve water jug problems using Prolog.
8. Write simple Prolog functions such as the following. Take into account lists which are too short.
-- remove the Nth item from the list. -- insert as the Nth item.
9. Assume the prolog predicate $gt(A, B)$ is true when A is greater than B. Use this predicate to define the predicate $addLeaf(Tree, X, NewTree)$ which is true if NewTree is the Tree produced by adding the item X in a leaf node. Tree and NewTree are binary search trees. The empty tree is represented by the atom nil.

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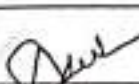
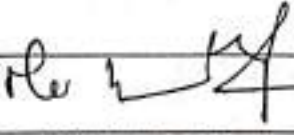
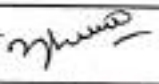
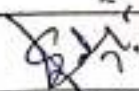
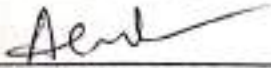
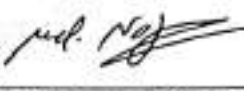
10. Write a Prolog predicate, countLists(Alist, Ne, Nl), using accumulators, that is true when Nl is the number of items that are listed at the top level of Alist and Ne is the number of empty lists. Suggestion: First try to count the lists, or empty lists, then modify by adding the other counter.
11. Define a predicate memCount(AList, Blist, Count) that is true if Alist occurs Count times within Blist. Define without using an accumulator. Use "not" as defined in utilities.pro, to make similar cases are unique, or else you may get more than one count as an answer.

Examples:

```
memCount(a,[b,
a],N).N
= 1 ;
no memCount(a,[b,[a
,a,[a],c],a],N).N = 4 ;
no memCount([a],[b,[a,a,[a],c],a],N).N = 1 ;
No
```

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 Dr. B. Vijaya Kumar	 Dr. Mohammed Nazeer	 Mrs. Ch. Swetha	Date of BoS Meeting : 31.03.2023



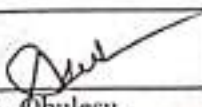
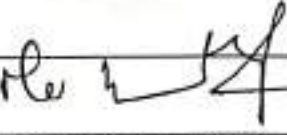
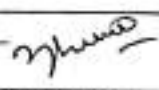
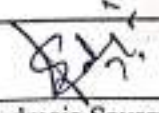
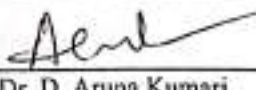
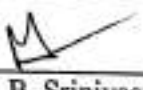
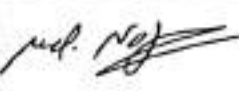
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PROFESSIONAL COMMUNICATION

II Year B.Tech. CSE(AI & ML)II Sem.

L T P C

Course Code:

0 0 2 1

Introduction:

The world is in need of effective and efficient professionals. Technical students are to be equipped with Professional Communication skills to enable them to face the growing employment demands. The course has been introduced to bridge the gap between communication skills of ELCS and ACS.

Course Outcomes:

A student learns:

1. Acquire enhanced personality
2. Exhibit appropriate professional etiquette
3. Practice team building with strong communication skills
4. Develop problem solving skills and decision-making
5. Demonstrate effective presentation skills

Unit: I: Self-Appraisal

Self-Introspection/ Self Retrospection

Introducing self & others

Goal setting

SWOT Analysis,

Unit: II: Professional Etiquette

Etiquette-Telephone Etiquette- Netiquette

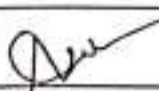
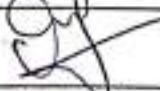
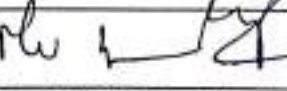
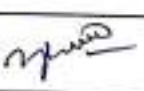
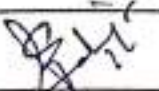
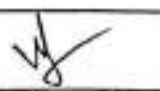
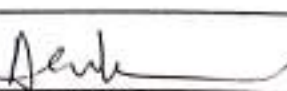
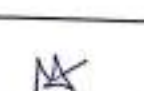
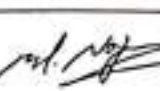
Email, Social Network

Behavioral Traits

Case study

Unit: III: Team Building

Leadership skills-Case Studies

			
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Team Essentials
Negotiation Skills
Group Discussion-Functional Aspects

Unit: IV: Logical Thinking and Analytical Reasoning

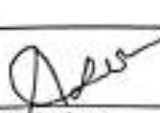
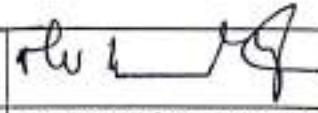
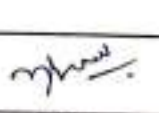
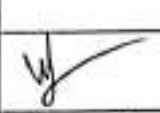
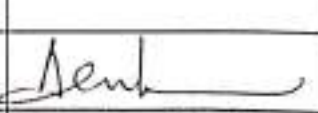
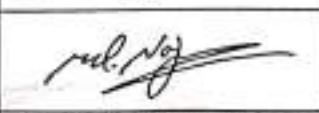
Decision Making
Problem Solving
Conflict management
Case Study

Unit: V: Presentation Skills

Poster Presentation
Oral Presentation-Individual Presentation, Team Presentation,
Thematic Presentation

References:

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8. S M Gupta. Current English Grammar and Usage, PHI, 2013.
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