# Sree Vidyakethan Engineering College (Autonomous)

## Course Structure (2011-2012)

### Department of Computer Science and Engineering

#### M.Tech. (Computer Science)

### I Semester

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Subject</th>
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<th>Credits</th>
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## III SEMESTER

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## IV SEMESTER

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Unit I


Unit II

**Basic structure of Computers:** Functional units - Basic operational concepts - Bus structures – Software- performance- multiprocessors and multi-computers. Data Types - Complements - Fixed Point Representation - Floating Point Representation - Error detection Codes.

Unit III


Unit IV

**Data Path Design:** Fixed Point Arithmetic- Addition- Subtraction- Multiplication and Division- Combinational and Sequential ALUs- Carry look ahead adder- Robertson algorithm- booth’s algorithm- non-reverting division algorithm- Floating Point Arithmetic- Coprocessor- Pipeline Processing- Pipeline Design- Modified booth’s Algorithm

Unit V

**Control Design:** Hardwired Control-Micro programmed Control-Multiplier Control Unit- CPU Control Unit- Pipeline Control- Instruction Pipelines- Pipeline Performance-Superscalar Processing-Nano Programming.
Unit VI
**The Memory System:** Basic concepts- semiconductor RAM memories. Read-only memories Cache memories- performance- Considerations- Virtual memories- secondary storage. Introduction to RAID.

Unit VII
**Input-Output Organization: Peripheral Devices:** Input-Output Interface- Asynchronous data transfer Modes of Transfer- Priority Interrupt Direct memory Access- Input –Output Processor (IOP) Serial communication; Introduction to peripheral component- Interconnect (PCI) bus. Introduction to standard serial communication protocols like RS232- USB- and IEEE1394.

Unit VIII
**Multi Processors:** Characteristics or Multiprocessors- Interconnection Structures- Inter processor Arbitration. Inter Processor Communication and Synchronization Cache Coherence - Shared Memory Multiprocessors.

**TEXT BOOKS :**

**REFERENCES :**
UNIT-I

UNIT-II
Functions: Inverse Function – Composite of functions - recursive Functions - Lattice and its Properties - Pigeon hole principles and its application.
Algebraic structures: Algebraic systems - Examples and general properties - Semi groups and monads - groups and sub groups - homomorphism - isomorphism.

UNIT-III
Elementary Combinatorics: Basis of counting - Combinations & Permutations with repetitions - Constrained repetitions - Binomial Coefficients - Binomial and Multinomial theorems - the principles of Inclusion – Exclusion.
Recurrence Relation: Generating Functions - Function of Sequences - Calculating Coefficient of generating function - Recurrence relations - Solving recurrence relation by substitution and Generating functions - Characteristics roots solution of In homogeneous Recurrence Relation.

UNIT-IV
Graph Theory: Representation of Graph – DFS – BFS - Spanning Trees-planar Graphs - Graph Theory and Applications - Basic Concepts Isomorphism and subgraphs - Multi graphs and Euler circuits - Hamiltonian graphs - Chromatic Numbers.
UNIT-V

UNIT -VI
Regular Languages: Regular sets - regular expressions - identity rules - Constructing finite Automata for a given regular expressions - Conversion of Finite Automata to Regular expressions. Pumping lemma of regular sets - closure properties of regular sets.
Grammar Formalism: Regular grammars-right linear and left linear grammars - equivalence between regular linear grammar and FA - inter conversion - Context free grammar - derivation trees - sentential forms. Right most and leftmost derivation of strings.

UNIT -VII
Push Down Automata: Push down automata–definition – model-acceptance of CFL - Acceptance by final state and acceptance by empty state and its equivalence - Equivalence of CFL and PDA - interconversion. (Proofs not required) - Introduction to DCFL and DPDA.

UNIT -VIII
Turing Machine: Turing Machine – definition – model - design of TM - Computable functions - recursively enumerable languages - Church’s hypothesis - counter machine - types of Turing machines.
Computability Theory: Chomsky hierarchy of languages - linear bounded automata and context sensitive language - LR(0) grammar - decidability of problems - Universal Turing Machine - undecidability of posts - Correspondence problem - Turing reducibility- Definition of P and NP problems - NP complete and NP hard problems.

SVEC10 Computer Science Engineering
TEXT BOOKS:
1. Trembly J.P. & Manohar .P, Discrete Mathematical Structures with applications to computer science, TMH
2. John C Martin, Theory of Computation, TMH.

REFERENCES:
4. Trembly J.P. & Manohar .P, Discrete Mathematical Structures with applications to computer science, TMH
UNIT I: Overview of Data Structures
Review of Arrays- Stacks- Queues- linked lists- Linked stacks and Linked queues- Applications

UNIT II: Algorithm Analysis

UNIT III: Trees and Graphs
Introduction- Definition and Basic terminologies of trees and binary trees- Representation of trees and Binary trees- Binary tree Traversals- Threaded binary trees- Graphs-basic concepts- representation and traversals.

UNIT IV: Binary Search Trees, AVL Trees and B Trees

UNIT V: Red – Black Trees, Splay Trees and Hash Tables

UNIT VI: Divide – and – Conquer & Greedy Method
UNIT VII: Dynamic Programming
General Method- All Pairs Shortest Path- Single Source Shortest Path- 0/1 Knapsack problem- Reliability Design- Traveling Sales Person’s Problem.

UNIT VIII: Back Tracking and Branch – and – Bound
General Method- 8 – Queen’s Problem- Graph Coloring. Branch – and – Bound: The Method- LC Search- Control Abstraction- Bounding- 0 / 1 Knapsack Problem.

Text books:

Reference books:
UNIT-I:

UNIT-II:

UNIT-III:
Software Requirements: Introduction to functional and non-functional requirements- Requirements engineering activities- Eliciting requirements- Requirements modeling- Requirements validation- Software requirements specification(SRS)- Requirements management.

Software Project Estimation: Empirical estimation models.

UNIT-IV:
Design Concepts: Software design quality guidelines and attributes- Design concepts.

Design: Structured view (Traditional view): Architectural mapping using data flow (Call and return architecture), Interface design, Function based component design.

Object oriented view: OO Architecture, Class hierarchies- Message design- Class based component design.

UNIT-V:
Performing User Interface Design: Golden rules- User interface analysis and design-interface analysis- interface design steps.

Pattern Based Design: Design patterns- Pattern based software design- Architectural patterns- Component level design patterns- User interface design patterns.

UNIT-VI:
Testing: Software testing strategies: A strategic approach to software testing- Test strategies (Unit testing and integration testing) for conventional and object oriented software- Validation testing- System testing- The art of debugging.

UNIT-VII:
Testing Conventional Applications: Software testing fundamentals- White-Box testing: basis path testing- condition (predicate) testing- data flow testing- loop testing- Black box testing: Equivalence partitioning- Boundary value analysis- Graph based testing methods.

Testing Object Oriented Applications: OO testing methods- Testing methods applicable at class level- Interclass test case design.

UNIT-VIII:
Umbrella Activities:

Software Reengineering: A software reengineering process model- Software reengineering activities.
**TEXT BOOKS:**

**REFERENCE BOOKS:**
SREE VIDYANIKETHAN ENGINEERING COLLEGE
(AUTONOMOUS)

M.Tech. (CS) L P C
I Semester 4 0 4

(10MT10505) DATABASE MANAGEMENT SYSTEMS

UNIT I
Databases and Database Users – Database System Concepts and Architecture – Data Modeling Using the Entity-Relationship Model – The Enhanced Entity-Relationship Model. (Text Book 1: Chapters 1, 2, 3 & 4.1,4.2,4.3,4.4)

UNIT II

UNIT III
The Relational Data Model and Relational Database Constraints – Relational Algebra and Relational Calculus: Tuple Relational Calculus – Domain Relational Calculus- SQL-99-schema-definitons-constraints (Text Book 1: Chapters 5, 6 & 8)

UNIT IV
Introduction to SQL programming Techniques – Introduction to PL/SQL – More on PL/SQL – Database Objects: Stored Procedures and Functions – Advantages of Using a Procedure or Function – Procedure Versus Functions – Syntax for Creating, Deleting Stored Procedure and Functions (Text Book 1: Chapter 9; Text Book 2: Chapters 6, 7 & 9)

UNIT V

UNIT VI
Introduction to Transaction Processing Concepts and Theory - Concurrent Control Techniques – Database recovery Techniques (Text Book 1: Chapters 17, 18 & 19).
UNIT VII
Distributed Database: An Overview – Levels of Distribution Transparency – Distributed Database Design – Translation of Global Queries to Fragment Queries (Text Book 3: Chapters 1, 3, 4 & 5)

UNIT VIII

Text Books:

Reference books:
Unit I:
**NEURAL NETWORKS:** Basic concepts-Supervised Learning Neural Networks – Perceptions - Adaline – Back propagation Multilayer Perceptrons – Radial Basis Function Networks

Unit II
**ARTIFICIAL NEURALS:** Unsupervised Learning Neural Networks – Competitive Learning Networks – Kohonen Self-Organizing Networks – Learning Vector Quantization – Hebbian Learning.

Unit III

Unit IV
**FUZZY MODELS:** Mamdani Fuzzy Models – Sugeno Fuzzy Models – Tsukamoto Fuzzy Models – Input Space Partitioning and Fuzzy Modeling.

Unit V

Unit VI
**Unit VII**  
**GENETIC ALGORITHM:** Survival of the fittest-cross over mutation-reproduction-rank method-rank space method- Application.

**Unit VIII**  
**SOFT COMPUTING AND CONVENTIONAL AI:** AI Search algorithm-Predicate calculus rules of interface - Semantic networks-frames-objects-Hybrid models- applications

**TEXT BOOK**  

**REFERENCES**  
UNIT-I
**Cameras:** Pinhole Cameras- Camera with Lenses- the Human Eye- Sensing. Radiometry- Measuring Light: Light in Space- Light at Surfaces- Important Special Cases.

UNIT-II
Sources- Shadows- and Shading: Qualitative Radiometry- Sources and Their Effects- Local Shading Models- Application: Photometric Stereo- Inter reflections: Global Shading Models.

UNIT-III
**Linear Filters:** Linear Filters and Convolution- Shift Invariant Linear Systems- Spatial Frequency and Fourier Transforms- Sampling and Aliasing- Filters as Templates- Technique: Normalized Correlation and Finding Patterns- Technique: Scale and Image Pyramids.

UNIT-IV

UNIT-V
Basic raster graphics algorithms for drawing 2 D Primitives linear- circles- ellipses- arcs- clipping- clipping circles- ellipses & polygon.

UNIT-VI
Polygon Meshes in 3D- curves- cubic & surfaces- Solid modeling. Geometric Transformation: 2D- 3D transformations- window to viewport transformations- aromatic and color models.
UNIT-VII


UNIT-VIII


**Text Books:**

**References:**
UNIT I
Digital image fundamentals - Digital Image through scanner - digital camera - Concept of gray levels Gray level to binary image conversion - Sampling and quantization - Relation ship between pixels - Imaging Geometry.

UNIT II

UNIT III
Image enhancement Point processing - Histogram processing - Spatial filtering - Enhancement in frequency domain - Image smoothing - Image sharpening.

UNIT IV

UNIT V
Image segmentation Detection of discontinuities. Edge linking and boundary detection - Thresholding - Region oriented segmentation.

UNIT VI
Image compression Redundancies and their removal methods - Fidelity criteria - Image compression models - Source encoder and decoder - Error free compression - Lossy compression.
UNIT VII
Basics of pattern recognition - Bayesian decision theory - Classifiers - Discriminant functions - Decision surfaces - Normal density and discriminant functions - Discrete features

UNIT VIII
Parameter estimation methods - Maximum-Likelihood estimation - Gaussian mixture models - Expectation-maximization method - Bayesian estimation

TEXT BOOK :

REFERENCES :
UNIT - I
Introduction: Purpose of testing- Dichotomies- model for testing- consequences of bugs- taxonomy of bugs

UNIT - II
Flow graphs and Path testing: Basics concepts of path testing- predicates- path predicates and achievable paths- path sensitizing- path instrumentation- application of path testing.

UNIT - III

UNIT - IV
Domain Testing:-domains and paths- Nice & ugly domains- domain testing- domains and interfaces testing- domain and interface testing- domains and testability.

UNIT - V

UNIT - VI

UNIT - VII
Graph Matrices and Application: Motivational overview- matrix of graph- relations- power of a matrix- node reduction algorithm- building tools. ( Student should be given an exposure to a tool like JMeter or Win-runner).
UNIT - VIII

TEXT BOOKS :

REFERENCES :
1. Brian Marick, The craft of software testing, Pearson Education.
2. Software Testing Techniques – SPD (Oreille)
Data Structures Lab Experiments:
1. Implementation of Stacks and Queues used linked list.
2. Perform the following operations using binary search tree:
   a) Insertion
   b) Deletion
   c) Searching
3. Perform the following operations on AVL-tree:
   a) Insertion
   b) Deletion
4. Implementing Knuth-Morris-Pratt pattern matching algorithm.
5. Implement the following using recursive and non-recursive traversals:
   a) Preorder
   b) Inorder
   c) Postorder.
6. Implement all the functions of a dictionary using hashing.
7. Implement a shortest path algorithm to find shortest path in a graph.
8. Implement 8-queen’s problem.

Database Management Systems Lab Experiments:
1. Implement a student-college relationship using DDL commands and practice all possible DML commands.
2. Implement queries to demonstrate aggregate functions, GROUP BY, HAVING and creation / dropping of views.
3. a. Practice various JOIN operations on relations.
   b. Implement various normalizations on relations.
4. Implement the various trigger operations on relations.
5. Perform the following operations of procedures on relations
   a. Creation of stored procedure
   b. Execution of procedure
   c. Modification of procedure
6. Implement Database Objects and creation of object structures for complex relations.
UNIT I
Foundation of Networking Protocols: 5-layer TCP/IP Model- 7-Layer OSI Model- Internet Protocols and Addressing- Equal-Sized Packets Model: ATM.


UNIT II

UNIT III

UNIT IV

UNIT V
UNIT VI

UNIT VII
Optical Networks and WDM Systems: Overview of Optical Networks- Basic Optical Networking Devices- Large-Scale Optical Switches- Optical Routers- Wavelength Allocation in Networks- Case Study: An All-Optical Switch

UNIT VIII

TEXT BOOKS:

REFERENCE BOOKS:
UNIT-I:
**Introduction:** Data Mining- Kinds of Data- Data Mining Functionalities- Classification of Data Mining Systems- Primitives- Major Issues in Data Mining.

UNIT-II:
**Data Preprocessing:** Descriptive Data Summarization- Data Cleaning- Data Integration and Transformation- Data Reduction- Data Discretization and Concept Hierarchy Generation.

UNIT-III:
**Data Warehouse and OLAP Technology:** What is Data Warehouse- A Multidimensional Data Model- Data Warehouse Architecture- Data Warehouse Implementation- From Data Warehouse to Data Mining.

UNIT-IV:
**Mining Frequent Patterns and Associations:** Basic Concepts- Efficient and Scalable Frequent Itemset Mining Methods- Mining Various Kinds of Association Rules.

UNIT-V:
**Classification and Prediction:** Issues regarding classification and prediction- classification by decision tree induction- Bayesian classification- Rule based classification- Prediction- Accuracy and Error Measures.

UNIT-VI:
**Cluster Analysis:** Types of Data in Cluster Analysis- A Categorization of Major Clustering Methods- Partitioning Methods- Hierarchical Methods- Density based Methods- Grid based methods- model based clustering methods- Clustering high dimensional data- Outlier analysis.
UNIT-VII:
Mining Stream- Time-Series- and Sequence Data: Mining Data Streams- Mining Time-Series Data- Mining Sequence Patterns in Biological Data.

UNIT-VIII:

TEXT BOOKS:

REFERENCE BOOKS:
1. Margaret H Dunham, Data Mining Introductory and Advanced Topics, Pearson Education, 2e, 2006.
Unit I
Object-Oriented concepts:

Unit II

Unit III

Unit IV
XML: Document Type Definition - XML Schemas - Document Object model - Presenting XML - Using XML Processors - DOM and SAX

Unit V

Unit VI
Unit VII
**Introduction to JSP:** The Problem with Servlet - The Anatomy of a JSP Page - JSP Processing - JSP Application Design with MVC architecture - AJAX.

**JSP Application Development:** Generating Dynamic Content - Using Scripting Elements
Implicit JSP Objects - Conditional Processing – Displaying Values Using an Expression to Set an Attribute - Declaring Variables and Methods
Error Handling and Debugging
Sharing Data Between JSP pages- Requests - and Users Passing Control and Date between Pages – Sharing Session and Application Data – Memory Usage Considerations

Unit VIII
**Database Access:** Database Access - Database Programming using JDBC Studying Javax.sql.* package - Accessing a Database from a JSP Page Application – Specific Database Actions - Deploying JAVA Beans in a JSP Page.

**TEXT BOOKS:**

1. Patrick Naughton and Herbert Schildt, The complete Reference Java 2 Fifth Edition , TMH.
3. Dietel, Dietel and Nieto, Internet and World Wide Web-How To Program, PHI/Pearson Education.
4. Hans Bergsten, SPD O'Reilly, Java Server Pages

**REFERENCE BOOKS:**

1. John Duckett, Begining Web Programming, WROX.
UNIT I
Introduction to UML: importance of modeling- principles of modeling- object oriented modeling- conceptual model of the UML- Architecture.

UNIT II
Class & Object Diagrams: Terms- concepts- modeling techniques for Class & Object Diagrams.

UNIT III
Interaction Diagrams: Sequence Diagrams: Terms- Concepts and Common modeling techniques
Collaboration Diagrams: Terms- Concepts and Common modeling techniques

UNIT IV
Advanced Behavioral Modeling: Events and signals- state machines- processes and Threads- time and space- state chart diagrams.

UNIT V
Architectural Modeling: Component- Deployment- Component diagrams and Deployment diagrams.
Case Studies: Automation of a Library- Software Simulator application (2-floor elevator simulator)

UNIT VI
The Unified process: use case driven- architecture centric- iterative- and incremental
The Four Ps: people- project- product- and process
Use case driven process: why use case- capturing use cases- analysis- design- and implementation to realize the use cases- testing the use cases
**Architecture-centric process:** architecture in brief- why we need architecture- use cases and architecture- the steps to architecture- an architecture description.

**Iterative incremental process:** iterative incremental in brief- why iterative incremental development? The iterative approach is risk driven- the generic iteration.

**UNIT VII**

**Inception phase:** early in the inception phase- the archetypal inception iteration workflow- execute the core workflows- requirements to test.

**Elaboration Phase:** elaboration phase in brief- early in the elaboration phase- the architectural elaboration iteration workflow- execute the core workflows-Requirements to test.

**UNIT VIII**

**Construction phase:** early in the construction phase- the archetypal construction iteration workflow- execute the core workflow.

**Transition phase:** early in the transition phase- activities in transition phase

**TEXT BOOKS :**

2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, UML 2 Toolkit, David Fado WILEY-Dreamtech India Pvt. Ltd.
3. Ivar Jacobson, Grady Booch, James Rumbaugh, The Unified Software Development Process By, Pearson Education

**REFERENCE BOOKS :**

3. Mark Priestley, Practical Object-Oriented Design with UML, TATA McGrawHill
7. R.C.Lee, and W.M.Tepfenhart, UML and C++, PHI.

SVEC10 Computer Science Engineering
Unit I
Operating Systems Introduction: What operating system do-structure- operations process management- memory management- storage management- distributed systems- special purpose systems. Operating system services- system calls- virtual machines- system design and implementation.

Unit II

Unit III

Unit IV
Deadlocks- System Model- deadlocks characterization- methods for handling deadlocks deadlock prevention- deadlock avoidance- deadlock detection- and recovery from deadlock.

Unit V
**Unit VI**

**Case Study:** The LINUX system: Design principles- kernel modules- process management- scheduling- memory management- file systems- inter process communication.

**Unit VII**

**Introduction to Distributed systems:** Goals of distributed system- hardware and software concepts- design issues.

**Communication in Distributed systems:** Layered protocols- ATM networks- the client server model- remote procedure call and group communication.

**Unit VIII**

**Synchronization in distributed systems:** Clock synchronization- mutual exclusion- Election algorithms- the Bully algorithm- a ring algorithm- atomic transactions.

**Dead locks:** Deadlock in distributed systems- distributed deadlock prevention- and distributed deadlock detection.

**Text Books:**
2. Andrew. S. Tanenbaum, Distributed Operating System, PHI

**Reference Books:**
1. Crowley, Operating System A Design Approach, TMH.
4. Dhamdhere, Operating Systems, TMH.
Unit I
UNDERSTANDING CLOUD COMPUTING:

Unit II

Unit III
BUILDING CLOUD NETWORKS: The Evolution from the MSP Model to Cloud - Computing and Software-as-a-Service -The Cloud Data Center - Collaboration - Service-Oriented Architectures as a Step Toward Cloud Computing -Basic Approach to a Data Center-Based SOA - The Role of Open Source Software in Data Centers.

Unit IV
COMMON STANDARDS IN CLOUD COMPUTING: The Open Cloud Consortium - The Distributed Management Task Force - Open Virtualization Format - Standards for Application Developers - Browsers (Ajax) - Data (XML- JSON) - Solution Stacks (LAMP and LAPP) - Standards for Messaging - Standards for Security
Unit V

Unit VI
CLOUD COMPUTING FOR EVERYONE: Centralizing Email Communications - Collaborating on Schedules - Collaborating on To-Do Lists - Collaborating Contact Lists - Cloud Computing for the Community - Collaborating on Group Projects and Events - Cloud Computing for the Corporation

Unit VII

Unit VII

Text Books:


References:

2. Tim Mather, Subra Kumaraswamy, Shahed Latif, Cloud Security and Privacy: An Enterprise Perspective on Risks and Compliance (Theory in Practice), en | O'Reilly Media, Inc., 2009-09-12 18:32


UNIT I

UNIT II

UNIT-III

UNIT-IV
Embedded Programming Concepts: Software programming in Assembly language and High Level Language- Data types- Structures- Modifiers- Loops and Pointers- Macros and Functions- object oriented Programming- Embedded Programming in C++ & JAVA

UNIT-V
UNIT VI
Introduction to IPC in Embedded Systems: Tasks-Task states-Task and data-Shared data-Inter process communication -Signal Function-Semaphore- Message Queues-Mail box-Pipe-Sockets-RPC.

UNIT VII

UNIT V III

Text Books

REFERENCE
1. David E. Simon. An Embedded Software Primer, Pearson Education
2. John Catsoulis, Designing Embedded Hardware, O’reilly
4. Karim Yaghmour, Building Embedded Linux Systems, O’reilly
M.Tech. (CS) L P C
II Semester 4 0 4

(10MT20508) SERVICE ORIENTED ARCHITECTURE

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V
Deployment of Services- Integration of Process and Services: Architecture- and Restructuring of Organizations and Staff- Case Study: Broadband Communications Firm- Program Management Methodology: Overview- Methodology Frameworks and Key Factor Highlights on

SVEC10 Computer Science Engineering

UNIT VI

UNIT VII

UNIT VIII
Building SOA(Technology and Design)
Service Oriented Design(Part I-Introduction)-Introduction to Service-Oriented design-WSDL related XML Schema language basics-WSDL language basics-Service interface design tools. Service Oriented Design(Part II-SOA Composition Guidelines)-SOA Composing steps-Considerations for choosing service layers-Considerations for positioning core SOA standards-Considerations for choosing SOA extensions.

Text Books:
4. Eric Newcomer, Greg Lomow, Understanding SOA with Web Services, Pearson Education.
Reference Books:
2. E.Hewitt, Java SOA Cook book, SPD.
3. N.M. Josuttis, SOA in Practice, SPD.
4. Applied SOA, Wiley India Pvt. Ltd.
7. W.Roshen, SOA-Based Enterprise Integration, TMH.
UNIT I
Complexity in Real World
Complexity – Characteristics of complex problems

UNIT II
Learning
Learning in and about complex systems – Structure and Behavior of dynamic systems.

UNIT III
Systems thinking mindset
Holistic Thinking – Multi-levels of reasoning: Event-Pattern-Structure – Learning Organization

UNIT IV
Multi modeling approach
Multi-perspective: Stakeholder Needs, Alterables and Constraints

UNIT V
Problem solving approach
Problem Understanding: Discovery and Diagnosis.

UNIT VI
Tools for Systems Thinking
Causal Loop Diagram – Stocks and Flows – Dynamics of Simple Structures

UNIT VII
System Archetypes -1
Limits to Growth – Escalation – Drifting Goals

UNIT VIII
System Archetypes -2
Success to the Successful – Fixes that Fail– Shifting the Burden
**Text Books**

**References Books**
Object Oriented Analysis and Design Lab Experiments:

Draw the UML diagrams for the following case studies:

1. ATM application
2. University course information system
3. Online ticket reservation system
4. Online shopping
5. Hospital Management System
6. Unified Library Application
7. Two-floor elevator simulator

Web Technologies Lab Experiments:

1. Design static web pages for an online book store website.
2. Write Java script to validate the fields of the registration page.
3. Design a web page using CSS.
4. Write a DTD (Document Type Definition) to validate an XML file.
5. Develop an application using Java Beans.
7. Develop JSP to connect to the database and experiment with various SQL queries.
8. Create an application using cookies and sessions.