THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
23IT301T	Applied Mathematics-III	3	-	-	3	30	70	100

Course Objectives	Course Outcomes
This course is intended • To introduce the essential concepts of Numerical Computational techniques & Theory of Probability. • To familiarize the students with concepts in linear algebra and statistics.	**Students will be able to** • Analyze and solve problems by numerical computation method for transcendental equations and System of linear equations. • Identify engineering problems related to Matrices: Eigen value & Eigen vectors & Functions of Matrices. • Apply various concepts of vector spaces. • Apply various concepts of joint distribution. • Use statistical methods and tools in engineering problems.

Unit I	**[8Hrs]**
Numerical Methods: Error in numerical calculations, Solution of Algebraic and Transcendental Equations: Method of False position, Newton–Raphson method, Solution of system of simultaneous linear equations: Gauss Seidel method and Crout's method Largest Eigen value and Eigen vector by Iteration method. Euler modified method, Runge Kutta method.	
Unit II	**[7Hrs]**
Matrices: Linear dependence of vectors, Characteristics equation, Eigen values and Eigen vectors, Reduction to diagonal form, Reduction of quadratic form to canonical form by orthogonal transformation, Sylvester's theorem.	
Unit III	**[6Hrs]**
Vector Space: Subspaces, Linear Dependence/Independence, Basis, Dimension, Range Space and Rank, Null Space and Nullity, Rank nullity theorem, Linear transformation.	
Unit IV	**[7Hrs]**
Probability: Baye's rule, Review of discrete and continuous random variables, Joint probability function of discrete random variable, Marginal probability function and Conditional distribution of discrete random variable, Mathematical expectation of discrete random variable, Variance and Standard deviation, and Covariance of joint distribution.	
Unit V	**[7Hrs]**
Statistics: Multiple regression analysis, Regression equation of three variables, Measures of central tendency, Mean, Median, Mode, Mean deviation, Standard deviation, Testing a hypothesis, Null hypothesis, Alternative hypothesis, t-test, F-test and Chi square test.	

Text Books

S.N	Title	Authors	Edition	Publisher
1	Linear Algebra and Its Application (Paperback)	Gilbert Strang	2007	Nelson Engineering
2	Higher Engineering Mathematics	B.S. Grewal	40th	Khanna Publication
3	Theory & problems of Probability and Statistics	Murray R. Spiegel		Schaum Series, Mc Graw Hills
4	Introductory methods of Numerical Analysis	S.S. Sastry		PHI

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Advanced Engineering Mathematics	Erwin Kreysizig	8th	Wiley India
2	Linear Algebra	Seymour Lipschutz etal	3rd	Schaum series.
3	First course in Linear Algebra	Nagpaul,		Wiley Eastern Ltd, New Delhi
4	Higher Engineering Mathematics	H.K. Dass & Er. .Rajnish Verma		S.Chand Publication.

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
23IT302P	Data Structures Lab	-	-	4	2	25	25	50

Course Objectives	Course Outcomes
This course is intended • To understand basic of algorithm; its analysis • To Learn the linear data structure like stack, queue linked list • To give emphasis on implementation of linear data structure • To study implement nonlinear data structure like tree graph • To use appropriate data structures for solving various applications depending on behavioralproperties.	**Students will be able to** • Understand the concept of analysis of algorithms, and implement various sorting searching algorithm • Implement ADT such as Stack Queue • Illustrate the operation on linked list throughimplementation • Select and use appropriate non Linear data structureslike tree for data representation • Use an appropriate non Linear data structures like graph and hashing techniques for data representationfor solving data organization problem

Expt. No.	Experiments based on
1	Searching algorithm
2	Sorting algorithm
3	Implementation of ADT-Stack
4	Implementation of ADT-Queue
5	Implementation of Linked operation
6	Implementation of nonlinear data structure-TREE
7	Implementation of BST tree traversing
8	Implementation of nonlinear data structure-Graph Algorithm (DFS; BFS)

Text Books

Sr.No.	Title	Authors	Edition	Publisher
1	Fundamentals of Data Structures in C++	E. Horowitz, D. Mehta, S. Sahni	2nd	Silicon Press
2	Programming with C and Data structures	R.S. Bichkar	1st	Universities Press
3	Data structure Algorithm	Alferd V. Aho, John E.	1st	Pearson Education

Reference Books

Sr.No.	Title	Authors	Edition	Publisher
1	Data Structures Through C	Kanetkar, Yashavant	2nd	BPB publication
2	Data Structures : A Pseudocode Approach With C	T. H. Cormen, C. E. Leiserson, R.L.Rivest,	3rd	MITPress
3	Data Structure And Algorithm	Pandey, Hari Mohan	2nd	University Science Press

Online Resources

1	https://www.geeksforgeeks.org/data-structures/
2	https://www.w3schools.com/dsa/dsa_intro.php
3	https://www.javatpoint.com/data-structure-tutorial
4	https://www.programiz.com/dsa

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
23IT302T	Data Structures	4	-		4	30	70	100

Course Objectives	Course Outcomes
This course is intended • To understand basics of algorithm its analysis • To Learn the linear data structure like stack, queue linked list • To emphasize implementation of linear data structure • To study implement nonlinear data structures like tree;graph • To use appropriate data structures for solving variousApplications depending on behavioral properties.	**Students will be able to** • Understand the concept of analysis of algorithms, and implement various sorting searching algorithm • Implement ADT such as Stack; Queue • Illustrate the operation on linked • Select and use appropriate non-Linear data structuresfor data representation • Use an appropriate non-Linear data structures like graph and hashing techniques for data representationfor solving data organization problem

Unit I: Algorithm, Searching Sorting	**[10Hrs]**
An introduction to algorithm, time and space analysis of algorithm, general concept of data structure, types of data structures. asymptotic notations-Big O notations, omega notation & theta notation. Average , Best, Worst case analysis, Searching-Linear and Binary search, Selection sort, Bubble sort, Insertion sort, Shell sort, quick sort	
Unit II: Stacks and Queues	**[10Hrs]**
Definition and Terminology, ADT stack and its operations, applications of stacks: Expression conversion and evaluation. ADT queue and its operation, Types of queue: Simple queue, circular queue, priority queue, double ended queue. Application of queues.	
Unit III: Linked Lists	**[10Hrs]**
Singly linked lists: Representation in memory, operation on linked list, algorithms: Traversing, searching, insertion , deletion , Types of linked list: Singly linked list, Circular linked list, Doubly linked list, Circular doubly linked list; Application of Linked Lists.	
Unit IV: Trees Data Structure	**[10Hrs]**
Trees: Basic Tree Terminologies, representation of tree. Different types of Trees: Binary Tree, Threaded Binary Tree, Binary Search Tree, AVL Tree, B Tree, B+ Tree. Tree traversals algorithm-Inorder, Preorder & Postorder traversal, Tree operations , Applications of trees.	
Unit V:Graph & Hashing Techniques	**[8Hrs]**
Graph: Basic Terminologies and Representations, Types of Graph, Traversal algorithms: Depth First search and Breadth First Search, Spanning trees: Minimum cost spanning tree. Introduction to Hashing, Hashing Techniques & Collision handling Mechanism, Problem based on hashing.	

Text Books

Sr.No.	Title	Authors	Edition	Publisher
1	Fundamentals of Data Structures in C++	E. Horowitz, D. Mehta, S. Sahni	2nd	Silicon Press
2	Programming with C and Data structures	R.S. Bichkar	1st	Universities Press
3	Data structure Algorithm	Algorithm Alferd V. Aho, John E.	1st	Pearson

Reference Books

Sr.No.	Title	Authors	Edition	Publisher
1	Data Structures Through C	Kanetkar, Yashavant	2nd	BPB publication
2	Data Structures : A Pseudocode Approach With C	T. H. Cormen, C. E. Leiserson, R.L.Rivest,	3rd	MITPress
3	Data Structure And Algorithm	Pandey, Hari Mohan	2nd	University Science Press

Online Resources

1	https://www.geeksforgeeks.org/data-structures/
2	https://www.w3schools.com/dsa/dsa_intro.php
3	https://www.javatpoint.com/data-structure-tutorial
4	https://www.programiz.com/dsa

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
23IT303T	Computer Network	3	-		3	30	70	100

Course Objectives	Course Outcomes
This course is intended • To delivers the fundamentals of computer network • To discuss and focuses on network architectures, protocols and applications, techniques for encoding and modulation.	**Students will be able to** • Learn broad overview of computer networking and the Internet • Interpret several important link-layer concepts and technologies • Reflects a modern view of the network layer's role in computer networking. • Use pedagogic approach to discuss transport-layer principles and howthese principles are implemented in existing protocols • Study in-depth secure communication and how computer networks canbe defended from intruders

Unit I: Computer Networks and the Internet **[8Hrs]**

What Is the Internet? The Network Edge, The Network Core, Delay, Loss, and Throughput in Packet-Switched Networks, Protocol Layers and Their Service Models, Encapsulation, History of Computer Networking and the Internet, Wireless Links and Network Characteristics, WiFi: 802.11 Wireless LANs, Cellular Internet access, Mobility Management: Principles, Mobile IP, Managing Mobility in Cellular Networks.

Unit II: The Link Layer and LANs **[6Hrs]**

Introduction to the Link Layer, Error-Detection and -Correction Techniques, Multiple Access Links and Protocols, Switched Local Area Networks, Link Virtualization: A Network as a Link Layer, Data Center Networking ,Retrospective: A Day in the Life of a Web Page Request.

Unit III: Network Layer **[6Hrs]**

Overview of Network Layer ,What's Inside a Router?, The Internet Protocol (IP): IPv4, Addressing, IPv6, and More, Generalized Forwarding and SDN, Routing Algorithms, Intra-AS Routing in the Internet: OSPF, Routing Among the ISPs: BGP, The SDN Control Plane, ICMP: The Internet Control Message Protocol, Network Management and SNMP.

Unit IV: Transport and Application Layer **[8Hrs]**

Introduction and Transport-Layer Services, Multiplexing and Demultiplexing , Connectionless Transport: UDP ,Principles of Reliable Data Transfer, Connection-Oriented Transport: TCP ,TCP Congestion Control ,Principles of Network Applications, The Web and HTTP , DNS,

Unit V: Security in Computer Networks **[8Hrs]**

Network Security Principles of Cryptography, Message Integrity and Digital Signatures ,Cryptographic Hash Functions, Message Authentication Code, Digital Signatures ,End-Point Authentication ,Securing E-Mail ,Securing TCP Connections, Network-Layer Security: IPsec and Virtual Private Networks (VPN), Securing Wireless LANs, Operational Security:Firewalls and Intrusion Detection Systems.

Text Books

Sr. No.	Title	Authors	Edition	Publisher
1	Computer Networking -A Top-Down Approach	James F. Kurose	7th	Pearson Publication
2	Data Communications and Networking	Fourauzan B.	3rd	TataMcGraw-Hill Publications,
3	Computer Networks	Tanenbaum A.	4th	PHI
4	Cryptography and Network Security	William Stallings	5th	Prentice Hall

Reference Books

Sr. No.	Title	Authors	Edition	Publisher
1	An Engineering Approach to Computer Networking	Keshav S	2nd	Pearson Education,
2	Computer Networks and Internet	Comer D.,	2nd	Pearson Education,
3	Local Area Networks	S.K. Basandra & S Jaiswal	3rd	Galgotia Publications

Online Resources

1	https://www.geeksforgeeks.org/computer-network-tutorials/
2	https://www.javatpoint.com/computer-network-tutorial
3	https://www.scaler.com/topics/computer-network/
4	https://www.scaler.com/topics/computer-network/

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
23IT303P	Computer Network Lab		-	2	1	25	25	50

Course Objectives	Course Outcomes
This course is intended ● To delivers the fundamentals of computernetwork ● To discuss and focuses on network architectures, protocols and applications,techniques for encoding and modulation.	**Students will be able to** ● Learn and apply the concepts of computer network for real time system connection and communication. ● Analyze data link layer protocol peer to peer mode for handling data. ● Apply the knowledge of network layer concepts for subnetting. ● Implement the routing protocols for network route identification. ● Interpret and apply the concepts for installing and configuring DHCP.

Expt. No.	Experiments based on
1	Study of different types of Network cables and Network Devices practically implement the cross wired cable and straight through cable using clamping tool
2	Connect the computers in Local Area Network and demonstrate the data sharing and hardware sharing
3	Write a program for error detection and correction Hamming Codes or CRC.
4	Write a program to simulate Go back N and Selective Repeat Modes of Sliding Window Protocol in peer to peer mode and demonstrate the packets captured traces using Wireshark Packet Analyzer Tool for peer to peer mode
5	Write a program to demonstrate subnetting and find the subnet masks.
6	Demonstrate the packets captured traces using Wireshark Packet Analyzer Tool for peer to peer mode
7	Write a program for encryption decryption technique.

Text Books

Sr.No.	Title	Authors	Edition	Publisher
1	Computer Networking -A Top-Down Approach,	James F. Kurose	7th	Pearson Publication
2	Data Communications and Networking	Fourauzan B.	3rd	Tata McGraw-Hill Publications,
3	Computer Networks	Tanenbaum A.	4th	PHI

Reference Books

Sr.No.	Title	Authors	Edition	Publisher
1	An Engineering Approach to Computer Networking	Keshav S	2nd	Pearson Education,
2	Computer Networks and Internet	Comer D.,	2nd	Pearson Education,
3	Local Area Networks	S.K.Basandra & S. Jaiswal	3rd	Galgotia Publications

Online Resources

1	http://vlabs.iitkgp.ernet.in/ant/
2	https://ns3simulation.com/list-of-network-simulators/
3	https://netsim.erinn.io/

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
23IT304T	Computer Architecture and Organization	3	-	-	3	30	70	100

Course Objectives	Course Outcomes
This course is intended ● To understand the design of the various functionalunits and components of computers. ● To make the students understand the basic operations involved in execution of an instruction. ● To explain the basic concept of interrupts and their usage to implement I/O control and data transfers. ● To explain the function of each element of a memory hierarchy.	**Students will be able to** ● Summarize the organization and operation of digital computers. ● Study and apply knowledge of processor instruction sets and its execution. ● Demonstrate computer arithmetic operations on integer and floating-point numbers. ● Describe the organization of memory system. ● Explain concepts of I/O organization and pipelining of a processor.

Unit I: Basic structure of computer	**[8Hrs]**
Functional Units , Architecture of a small accumulator based CPU, A typical CPU with general register organization, Instruction execution cycle, Addressing modes , Instruction Format. **Processing Unit:** Execution of a complete instruction, Sequencing of control Signals, types of Buses, Single, Two, multiple bus structure	
Unit II: Computer Arithmetic	**[6Hrs]**
Binary Addition, Addition and subtraction, Multiplication of unsigned binary integers, Booth's algorithm for Two's complement multiplication unsigned, Unsigned binary division, IEEE Floating-Point representation, Floating Point arithmetic.	
Unit III: Control Unit	**[6Hrs]**
Control Unit operation: Introduction, Micro-operations, Control of the Processor, Hardwired implementation, **Micro programmed control**: Microinstruction formats, Micro programmed control unit, Functioning of microprogrammed control unit, Microinstruction sequencing techniques.	
Unit IV: The Memory System	**[8Hrs]**
Internal organization of memory chip, Static memories, Dynamic RAMs, Read-Only Memories, Memory interleaving, Cache Memory, Mapping techniques, Virtual memory, Memory Management requirements, I/O modules, Programmed I/O, Interrupt-Driven I/O, DMA.	
Unit V: Pipelining and parallel Processing	**[8Hrs]**
Pipelining: Introduction, Pipeline organization, Pipelining issues, Memory delays, Branch delays, Parallel Processing, Types of parallel processor systems, Vector processing **Processors:** RISC & CISC Processors, Pentium processor, superscalar processor	

Text Books

Sr.No.	Title	Authors	Edition	Publisher
1	Computer Organization	V. Carl Hamacher	4th	Mc GrawHill
2	Computer Organization and Design	David A.Patterson & John L. Hennessy Morg.	4th	

Reference Books

Sr.No.	Title	Authors	Edition	Publisher
1	Computer Architecture & Organization	William Stallings	9th	Pearson
2	Computer Architecture & Organization	John P Hayes	3rd	Mc GrawHil

Online Resources

1	https://www.geeksforgeeks.org/computer-organization-basic-computer-instructions/
2	https://www.javatpoint.com/computer-instructions

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
23IT305P	Computer Lab - I	-	-	2	1	25	25	50

Course Objectives	Course Outcomes
This course is intended • To develop required computer hardware skills. • To acquire the competency such as Identify faults, troubleshoot, repair and do preventive maintenance of computer system and its Peripherals.	**Students will be able to** ● Learn & Identify computer peripherals and Microprocessor kit. ● Demonstrate the installation of Operating Systems and device drivers. ● Interpret the configuring and maintenance process of various components in computer system and peripheral devices. ● Identify various faults, repair them and learn how to maintain computer system and its peripherals.

Expt. No.	Experiments based on
1	Study of computer peripherals. Processor, Motherboard, Hard disk, CD/DVD ROM, Monitor, SMPS, Safety Precautions.
2	Study and Configuration of BIOS.
3	Assembling of Personal Computer.
4	Partitioning Hard disk
5	Installation of Operating System (windows, Linux, ubuntu etc).
6	Execution of basic commands (Unix, Linux, ubuntu etc).
7	Study Networking Basics and execution of networking commands.
8	File and Printer Sharing in Network.
9	Structured Cabling.
10	Building a Small Home Network.
11	WI-FI Basics.
12	Protecting PC From Virus, Spyware and Malware.
13	Study of cache memory, memory mapping by using simulators.

Text Books

Sr. No	Title	Authors	Edition	Publisher
1	Computer Installation and Servicing	D Bala Subramanian	2nd	Tata McGraw Hill Education private Limited
2	The complete PC Upgrade & Maintenance Guide	Mark Minasi	16th	BPB Publications
3	IBM PC and clones	Govindarajalu	2nd	Tata McGraw Hill Education private Limited

Online Resources

1	https://www.computerhope.com/issues/ch001781.htm
2	https://www.javatpoint.com/linux-commands
3	https://www.geeksforgeeks.org/basic-linux-commands/

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
23IT306P	Career Development III	-	-	2	1	50	-	50

Course Objectives	Course Outcomes
This course is intended • Imparting aptitude training is to make students able to critically evaluate various real-life situations by resorting to an analysis of key issues and factors. • Aptitude Training helps them to demonstrate various principles involved in solving mathematical problems and thereby reducing the time taken for performing job functions. • To categorize, apply and use thought process to distinguish between concepts of Quantitative methods.	**Students will be able to** • Understand the concepts of Numbers system, Number series and Analogy. • Understand the concepts of Simple Equation and Percentage. • Understand the concepts of ratio and proportions and partnership and ages. • Understand the concepts of Profit Loss and Discount. • Understand the concepts of Simple and Compound Interest.

Unit I	**[5Hrs]**
Number System: - Divisibility Test, LCM/HCF Problems, Factorization, Remainder Theorem, Successive Division. Number Series:- Missing Number Series, Wrong Number series, Letter Series, Analogy (Number, Letter, Word, Non Verbal analogy Key Skills and Abilities, Goal & Interests	
Unit II	**[5Hrs]**
Simple Equations Percentage: - Percentage to ratio conversion, Successive Percentage, Increase Decrease of Percentage, etc. Ambition & Knowledge,	
Unit III	**[5Hrs]**
Ratio & Proportion:- Joining of two ratios, Proportion, Mean Proportions, Problems on ages Partnership Problems, true potential of your Branch of Engineering, Engineering Principle From Human Body	
Unit IV	**[5Hrs]**
Profit Loss:- Concept of Profit loss, Relation between CP SP Profit and Loss, Problems on Profit Loss. Discount:- Successive Discount, Relation between MP Discount and Selling Price, Problems based on Discount.Critical Creative & System Thinking, Cornell Note Taking System,	
Unit V	**[4Hrs]**
Simple Interest, Compound Interest, Engineering Habits of mind, need to think Creatively	

Text Books

S.N	Title	Authors	Edition	Publisher
1	Quantitative Aptitude By R. S. Aggarwal	R.S. Aggarwal	--	S.Chand
2	Quantitative Aptitude	Shripad Deo	--	Allied Publishers Pvt Ltd
3	A Modern Approach to Verbal & Non-Verbal Reasoning	R.S. Aggarwal	--	

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Quantitative Aptitude for CAT	Arun Sharma	—	MC Graw Hill

		July 2024	1.2	Applicable for 2024-25
Chairman - BoS	Dean – Academics	Date of Release	Version	

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
23ES301T	Value Education Course-I	2	-	-	2	15	35	50

Course Objectives	Course Outcomes
This course is intended ● To develop a holistic perspective through self-exploration and development of clarity about harmony between self, family, society and nature.	**Students will be able to** ● Demonstrate awareness about concepts like self-exploration & natural acceptance. ● Understand concepts of aspirations and happiness. ● Develop clarity of harmony and health in human being. ● Discuss concepts of conservation of nature and harmony in nature/existence and re-usability.

Unit I : Introduction to Self-Exploration	**[6Hrs]**
Purpose & motivation for studying universal human values. Self-Exploration–what is it? - Its content and process. 'Natural Acceptance' and Experiential Validation- as the process for self-exploration.	
Unit II: Understanding Happiness and Prosperity	**[6Hrs]**
Understanding Happiness and Prosperity correctly. Continuous Happiness and Prosperity- A look at basic Human Aspirations. Right understanding, Relationship and Physical Facility. Method to fulfill the above human aspirations: understanding and living in harmony at various levels.	
Unit III: Understanding Harmony in human being	**[6Hrs]**
Understanding human being as a co-existence of the sentient 'I' and the material 'Body'. Understanding the needs of Self ('I') and 'Body' - happiness and physical facility. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer). Understanding the characteristics and activities of 'I' and harmony in 'I'. Understanding the harmony of I with the Body: Sanyam and Health.	
Unit IV: Co-existing with nature	**[6Hrs]**
Understanding the harmony in Nature. Interconnection and mutual fulfillment among the four orders of nature- recyclability and self-regulation in nature. Understanding Existence as Coexistence of mutually interacting units in all-pervasive space. Holistic perception of harmony at all levels of existence.Pollution, depletion of resources and role of technology.	

Text Books

Sr.No.	Title	Authors	Edition	Publisher
1	Human Values and Professional Ethics	Gaur, Sangal, Bagaria	2010	Excel Books, New Delhi

Reference Books

Sr.No.	Title	Authors	Edition	Publisher
1	Jeevan Vidya: Ek Parichaya	A. Nagaraj	1999	Jeevan Vidya Prakashan, Amarkantak
2	Human Values	A.N. Tripathi	2004	New Age Intl. Publishers, New Delhi
3	The Story of My Experiments with Truth	M.K.Gandhi	2009	Fingerprint! Publishers

Online Resources

1	https://fdp-si.aicte-india.org/UHV-II%20Class%20Note.php
2	https://fdp-si.aicte-india.org/UHV-II_Lectures_PPTs.php

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
23IT331M	MDM-I Fundamentals of Cloud Computing	2	-	-	2	15	35	50

Course Objectives	Course Outcomes
This course is intended • Gain a solid understanding of cloud computing concepts, including service models (IaaS, PaaS, SaaS) and deployment models (public, private, hybrid). • Apply Cloud Concepts in Real-World Scenarios	**Students will be able to** • Explain the role of networking in cloud environments. • Understand OS components (process management, memory management, file systems). • Choose the right cloud model based on specific use cases. • Apply knowledge of cloud reference model in real world. • Identify appropriate deployment model based on organizational needs.
Unit I: Computer Networking Basics:	**[5Hrs]**
What is Computer Networks? Overview of computer networks, Understanding network protocols (TCP/IP, HTTP, etc.) Basics of network architecture and communication	
Unit II: Operating Systems Concepts:	**[5Hrs]**
Introduction to operating systems, Key components of an OS (process management, memory management, file systems)Basic of distributed OS, Role of the OS in cloud environments	
Unit III: Introduction to Cloud Computing:	**[4Hrs]**
Definition of cloud computing, Evolution of cloud technology, Why need of cloud computing, Characteristics of cloud computing, Pros and cons of cloud computing ,Challenges in adopting cloud solutions	
Unit IV: Cloud Reference Model	**[6Hrs]**
Cloud Service Models: Infrastructure as a Service (IaaS),Platform as a Service (PaaS),Software as a Service (SaaS) Comparison and use cases, Cloud Deployment Models: Public cloud, private cloud, hybrid cloud, Considerations for choosing a deployment model, Security implications	
Unit V: Cloud Providers	**[4Hrs]**
Overview of major cloud service providers (e.g., AWS, Azure, Google Cloud), Understanding their offerings and pricing models, Introduction to Amazon Web Services (AWS), GCP, and Microsoft Azure	

Reference Books

S.N	Title	Authors	Edition	Publisher
1.	Computer Networks	Andrew S. Tanenbaum	5	Prentice Hall PTR,
2.	Operating System Concepts	Abraham Silberschatz, Greg Gagne, and Peter Baer Galvin	8	Wiley
3.	Cloud Computing Principles and Paradigms	Rajkumar Buyya	1st	Wiley

Web Resources:

1. GeeksforGeeks : https://www.geeksforgeeks.org/