Vijaya College, RV Road, Bengaluru-560004

Department of Computer Science

CURRICULAR ASPECTS for the academic year 2023-2024

Academic Planner with unitisation of the Entire Syllabus

Name of the Department	**Computer Science**	**Subject Title**	**Teacher**
Semester	**II SEM BSC**	**CS-C3T: Data Structures using C**	**DIVYA S R** **HEMALATHA M**
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 1 hour**	
4th week of March 2024	1	Unit-I Introduction and Overview: Definition, Elementary data organization,	SRD
	2	Data Structures, data structures operations,	SRD
	3	Abstract data types, algorithms complexity	HML
	4	time-space tradeoff.	HML
1st Week of April 2024	1	Preliminaries: Mathematical notations and functions,	SRD
	2	Algorithmic notations, control structures, Complexity of algorithms,	SRD
	3	asymptotic notations for complexity of algorithms.	HML
	4	String Processing: Definition,	HML
2nd week of April 2024	1	Storing Stings, String as ADT, String	SRD
	2	Summary and Discussion on Important questions	SRD

	3	Unit-II Arrays: Definition,	HML
	4	Linear arrays,	HML
3rd week of April 2024	1	arrays as ADT, Representation of Linear Arrays in Memory,	SRD
	2	Traversing Linear arrays, Inserting and deleting,	SRD
	3	Sorting: Bubble sort,	HML
	4	shell sort, quick sort	HML
4th week of April 2024	1	Insertion sort, Selection sort,	SRD
	2	Searching: Linear Search, Binary search,	SRD
	3	Multidimensional arrays,.	HML
	4	Matrices and Sparse matrices	HML
1st Week of May 2024	1	Summary and Discussion on Important questions	SRD
	2	Unit-III Linked list: Definition, Representation of Singly linked list in memory,	SRD
	3	Traversing a Singly linked list,	HML
	4	Searching a Singly linked list,	HML
2nd Week of May 2024	1	Memory allocation, Garbage collection, Insertion into a singly linked list,	SRD
	2	Deletion from a singly liked list; Doubly liked list,	SRD
	3	Header liked list	HML
	4	, Circular linked list.	HML
3rd week of May 2024	1	Summary and Discussion on Important questions	SRD
	2	Unit-IV	SRD

		Stacks – Definition, Array representation of stacks,	
	3	Linked representation of stacks,	HML
	4	Stack as ADT,	HML
4th week of May 2024	1	Arithmetic Expressions: Polish Notation, Application of Stacks, Recursion,	SRD
	2	Towers of Hanoi, Implementation of recursive procedures by stack.	SRD
	3	Queues – Definition,	HML
	4	Array representation of queue,	HML
5th week of May 2024	1	Linked list representation of queues Types of queue: Simple queue,	SRD
	2	Circular queue, Double ended queue ,	SRD
	3	Priority queue,	HML
	4	Operations on Queues, Applications of queues.	HML
1st week of June 2024	1	Summary and Discussion on Important questions	SRD
	2	Unit-V Graphs: Graph theory terminology,	SRD
	3	Sequential representation of Graphs: Adjacency matrix,	HML
	4	traversing a Graph.	HML
2nd week of June 2024	1	Tree – Definitions, Binary trees,	SRD
	2	Representing binary trees in memory,	SRD
	3	Traversing binary trees	HML

	4	sparse tables	HML
3rd week of June 2024	1	B trees ,AVL trees ,applications of trees	SRD
	2	Collision resolution with open addressing, collision resolution in chaining.	SRD
	3	Hashing,	HML
	4	Revision or class adjustments due to holidays ,internal test etc	HML
4th week of June 2024	1	Revision	SRD
	2	Revision	SRD
	3	Revision	HML
1st week of july 2024	1	Revision	HML
	2	Revision	HML
	3	Revision	

Name of the Department	**Computer science**	**Subject Title**	**CA-C14T**
Bsc	**IV SEM**	**COMPUTER NETWORKS**	**Teacher**
Week/Month	**Day**	**Portions Planned for 4 hour**	**NAGESHWARI SHILPA KALA S**
4th week of MAR 24	1	Introduction: Communication Network and services	**NS AND SSK**
	2	Approaches to Network Design, Network Functions	
	3	Network Topology	
	4	Internet of history	
1ST week of APR 24	1	circuit Switching	**NS AND SSK**
	2	Internet packet switching	
	3	Key factors in Communication Network Evolution	
	4	OSI-ISO reference	
2nd week of APR 24	1	TCP/IP Model	**NS AND SSK**
	2	Telnet FTP and IP Utilities.	
	3	IP Utilities and Digital Transmission	
	4	Performance of networks	

3rd week of APR 24	1	Frequency Domain and Time Domain, wave length	**NS AND SSK**
	2	wave length , Fundamental limits in Digital Communication	
	3	The Nyquist Signalling rate,	
	4	The Shannon channel capacity	
4th week of APR 24	1	Transmission Systems: properties of media and digital transmission Systems – Twisted Pair	**NS AND SSK**
	2	Coaxial Cable, Optical Fibre,	
	3	Radio Transmission Infrared Light Error detection and correction – Error detection	
	4	Check sum problems	
1ST week of MAY 24	1	Error detecting capability of a polynomial code	**NS AND SSK**
	2	Multiplexing – frequency – Division, Time – Division, SONET; Wavelength Division	
	3	Multiplexing Circuit switches; Telephone network, signalling Traffic and Overload control in Telephone networks	
	4	Message switching	
2nd week of MAY 24	1	Peer –to-Peer Protocols: - Peer-to peer Protocols and service models	**NS AND SSK**
	2	ARQ Protocols stop and wait , Go –back-N	
	3	Selective Repeat, Transmission efficiency of ARQ protocols, Other adaptation functions	
	4	Data link layer ,HDLC	
3rd week of MAY 24	1	Local Area Networks and Medium access Control Protocols:- Multiple access communications	**NS AND SSK**
	2	Local Area network – LAN Structure	
	3	MAC Sublayer, Logical link control layer	
	4	Logical Link Control (LLC), DLL (Data Link Layer)	
4th week of MAY24	1	Reservation Systems, polling, Token passing rings	**NS AND SSK**
	2	comparison of Random access & Scheduling access control	
	3	Comparison of Radom access & SHEDULING MEDIUM access controls	
	4	**INTERNALS**	
1ST week of JUNE 24	1	LAN Standard; Token Ring and IEEE 8025	**NS AND SSK**
	2	LAN standard, FDDI Wireless LAN's	
	3	IEEE 802.11 Standards	
	4	802.11ac, 802.11n	
2nd week of JUNE 24	1	Mixed – media Bridges.	**NS AND SSK**
	2	Packet Switching Networks: - Network services & Internal Network Operation; Packet Network Topology	
	3	Datagrams & VIRTUAL circuits; structure of switch/ Router,	
	4	Connectionless packet switching	
3rd week of JUNE 24	1	Routing tables	**NS AND SSK**
	2	shortest path routing algorithms	
	3	Flooding	
	4	Dijkstra shortest path	

4th week of JUNE 24	1	Link state routing	**NS AND SSK**
	2	congestion control algorithms	
	3	Revision of unit-1	
	4	Revision of unit-2	

Name of the Department	**Computer Science**	**Subject Title**	**Teacher**
Semester	**IV**	**CA-C7T: OPERATING SYSTEMS**	**Shilpakala. S &** **Srikanth**
Week/Month	**Day**	**Portions Planned for 1 hour**	
4th week of March	1	**UNIT – I** Introduction	SSK
	2	Computer System Organization, Architecture, Structure	SSS
	3	Process Management	SSK
	4	Memory Management	SSS
1st week of April	1	Storage Management	SSK
	2	Kernel Data Structures	SSS
	3	Computing Environments	SSK
	4	Operating System Structures: Services, System Calls	SSS
2nd Week of April	1	Types, Operating System Structure, System Boot	SSK
	2	Processes: Process Concept, Scheduling	SSS
	3	Operations, Interprocess Communication	SSK
	4	Multithreaded Programming: Multicore Programming, Multithreading Models	SSS
	1	**UNIT –II** Process Synchronization	SSK
	2	The Critical-Section Problem, Peterson's Solution	SSS

3rd Week of April	3	Synchronizations Hardware, Mutex Locks	SSK
	4	Semaphores, Classic Problems of Synchronization	SSS
4th week of April	1	Monitors, Synchronization Examples	SSK
	2	Process Scheduling: Criteria, Scheduling Algorithms	SSS
	3	Multi-Processor Scheduling	SSK
	4	Real-time CPU Scheduling	SSS
1st week of May	1	Deadlocks: System model, Characterization	SSK
	2	Methods for handling deadlocks	SSS
	3	Deadlock Prevention, Avoidance, Detection and Recovery from deadlock	SSK
	4	Assignment 1 – covering all the above topics	SSS
2nd week of May	1	**UNIT – III** Memory Management Strategies	SSK
	2	Background, Swapping, Contiguous Memory Allocation, Segmentation, Paging	SSS
	3	Structure of the Page Table. Virtual Memory Management	SSK
	4	Demand Paging, Copy-on-Write	SSS
3rd week of May	1	Page Replacement; Allocation of Frames	SSK
	2	Thrashing, Memory-Mapped Files	SSS
	3	Allocating Kernel Memory	SSK
	4	File System: File Concept	SSS
4th week of May	1	Access Methods	SSK
	2	Directory structures	SSS

	3	Internals	SSk
	4	Internals	SSS
1st week of June	1	Disk Structure, Protection	SSS
	2	File-System Implementation: Structure	SSK
	3	**UNIT – IV** File-System and Directory Implementation	SSS
	4	Allocation Methods, Free Space Management	SSK
2nd week of June	1	Efficiency and Performance, Recovery	SSS
	2	Mass-Storage Structure: Overview, Disk Scheduling	SSK
	3	Disk Management, Distributed Systems: Advantages	SSS
	4	Types of Network- based OS, Robustness, Design Issues	SSK
3rd week of June	1	Distributed File Systems	SSS
	2	Case Studies: The Linux System	SSK
	3	Windows 10 (Process, Memory, storage management)	SSS
	4	Revision	SSK
4th week of June	1	Revision	SSS
	2	Revision	SSK
	3	Discussion of previous year question papers	SSS
	4	Discussion of previous year question papers	SSK