

Vijaya College, RV Road, Bengaluru-560004

Department of Computer Science

CURRICULAR ASPECTS for the academic year 2024-2025

Academic Planner with unitisation of the Entire Syllabus

Name of the Department	Computer Science	Subject Title	Teacher
Semester	II BSc	24BSC-CS-2:Data Structures	
Week/Month & Date (Preferably)	Day	Portions Planned for 1 hour	Swathi R
2 nd week of Feb.	1	Unit-I Introduction and Overview: Definition, Elementary data organization,	SR
	2	Data Structures, data structures operations,	SR
	3	Abstract data types, algorithms complexity	SR
	4	time-space tradeoff. Preliminaries: Mathematical notations and functions,	SR
3 rd week of Feb	1	Algorithmic notations, control structures, Complexity of algorithms,	SR
	2	asymptotic notations for complexity of algorithms. String Processing: Definition,	SR
	3	Storing Stings, String as ADT, String	SR
	4	Summary and Discussion on Important questions	SR
4th week of Feb	1	Unit-II Arrays: Definition, Linear arrays,	SR
	2	arrays as ADT, Representation of Linear Arrays in Memory,	SR
	3	Traversing Linear arrays, Inserting and deleting,	SR
	4	Sorting: Bubble sort, shell sort, quick sort	SR
1st week of Mar	1	Insertion sort, Selection sort	SR
	2	Searching: Linear Search, Binary search	SR
	3	Multidimensional arrays Matrices and Sparse matrices	SR
	4	Summary and Discussion on Important questions	SR
2nd week of Mar	1	Linked list: Definition, Representation of Singly linked list in memory,	SR

	2	Traversing a Singly linked list, Searching a Singly linked list	SR
	3	Memory allocation, Garbage collection	SR
	4	Insertion into a singly linked list,	SR
3rd week of Mar	1	Deletion from a singly liked list; Deletion from Doubly liked list,	SR
	2	Header liked list, Circular linked list.	SR
	3	Summary and Discussion on Important questions	SR
	4	Unit-III Stacks – Definition, Array representation of stacks,	SR
4th week of Mar	1	Linked representation of stacks, Stack as ADT,	SR
	2	Arithmetic Expressions: Polish Notation, Application of Stacks, Recursion,	SR
	3	Towers of Hanoi, Implementation of recursive procedures by stack.	SR
	4	Queues – Definition, Array representation of queue,	SR
1st week of Apr	1	Linked list representation of queues	SR
	2	Types of queue: Simple queue,	SR
	3	Circular queue, Double ended queue ,	SR
	4	Priority queue, Operations on Queues, Applications of queues.	SR
2nd week of Apr	1	Summary and Discussion on Important questions	SR
	2	Unit-IV Binary Trees: Definitions, Tree Search, Traversal of Binary Tree, Tree Sort,	SR
	3	Building a Binary Search Tree, Height Balance: AVL Trees	SR
	4	Contiguous Representation of Binary Trees	SR
3rd week of Apr	1	Heaps, Red Black Tree: Insertion and Deletion,	SR
	2	External Searching: B-Trees, Applications of Trees	SR
	3	Graphs: Graph theory terminology,	SR
	4	Mathematical Back ground, Computer Representation,	SR
4th week of Apr	1	Graph Traversal.	SR
	2	Hashing: Hash Table ADT	SR
	3	understanding Hashing, Components of Hashing	SR
	4	Hash Table, Hash Function,	SR
1st week of May	1	Hashing Techniques,	SR
	2	collisions, collision resolution techniques	SR
	3	Model Question paper discussion	SR
	4	Revision	SR
2nd week of May	1	Class Test	SR
	2	Model Question paper discussion	SR
	3	Revision or class adjustments due to holidays ,internal test etc	SR

Vijaya College, R.V Road, Bengaluru-560004

Department of Computer Science

Academic year-2024-2025

Academic Planner with unitisation of the Entire Syllabus (on hourly basis)

Name of the Department	Computer Science	Subject Title	Teacher
Semester	IV	BSC :OPERATING SYSTEM	HEMALTHA ALOK YESHASWINI
Week/Month	Day	Portions Planned for 1 hour	
2 nd week of Feb.	1	UNIT – I Introduction: Computer System Organization	HML
	2	Architecture Structure, Operations	HML
	3	Process Management, Memory Management	HML
	4	Storage Management, Kernel Data Structures	HML
3 rd week of Feb	1	Computing Environments.	HML
	2	Operating System Structures: Services	HML
	3	System Calls, types.	HML
	4	Operating System Structure	HML
4th week of Feb	1	System Boot	HML
	2	Processes: Process Concept	HML
	3	Scheduling, Operations	HML
	4	Inter process Communication. Multithreaded Programming	HML
1st week of Mar	1	Multicore Programming, Multithreading Models.	HML
	2	UNIT –II Process Synchronization: The Critical-Section Problem	YS
	3	Peterson’s Solution	YS
	4	Synchronization Hardware	YS
2nd week of	1	Mutex, Locks, Semaphores	YS
	2	Classic Problems of Synchronization	YS

Mar	3	Monitors, Synchronization Examples	YS
	4	Process Scheduling	YS
3rd week of Mar	1	Criteria, Scheduling Algorithms	YS
	2	Multi-Processor Scheduling	YS
	3	Real-time CPU Scheduling	YS
	4	Deadlocks: System model	YS
4th week of Mar	1	Characterization, Methods for handling deadlocks	YS
	2	Deadlock Prevention	YS
	3	Deadlock Avoidance, Detection	YS
	4	Recovery from deadlock	YS
1st week of Apr	1	UNIT – III Memory Management Strategies: Background, Swapping	AL
	2	Contiguous Memory Allocation	AL
	3	Segmentation, Paging	AL
	4	Structure of the Page Table	AL
2nd week of Apr	1	Virtual Memory Management	AL
	2	Demand Paging; Copy-on-Write	AL
	3	Page Replacement	AL
	4	Allocation of Frames	AL
3rd week of Apr	1	Thrashing, Memory-Mapped Files	AL
	2	Allocating Kernel Memory	AL
	3	File System: File Concept, Access Methods	AL
	4	Directory and Disk Structure, Protection.	AL
4th week of Apr	1	File-System Implementation: Structure	AL
	2	File-System and Directory Implementation	AL
	3	Allocation Methods, Free Space Management	AL
	4	Efficiency and Performance, Recovery	AL
	1	Mass-Storage Structure: Overview	AL
	2	Disk Scheduling	AL

Vijaya College, R.V. Road, Bengaluru-560004

Department of Computer Science

ACADEMIC PLANNER 2025-2026

VI Semester BSc

1. Academic Planner with unitisation of the entire syllabus (on hourly basis)

TEACHER: BHARATHI MG

Name of the Department	Computer Science	Course: BSc VI Semester Subject Title: CA-C14T: COMPUTER NETWORKS	
Semester	VI		
Week/Month	Day	Portions Planned for 1 hour	Teacher
3 rd week of FEB	1	Introduction: Communication Network and services	NS
	2	Approaches to Network Design, Network Functions	
	3	Network Topology,	
	4	Internet of history	
4 th week of Feb	1	circuit Switching	
	2	Internet packet switching	
	3	Key factors in Communication Network Evolution	
	4	OSI-ISO reference	
1 ST week of MARCH	1	TCP/IP Model	
	2	Telnet FTP and IP Utilities.	
	3	IP Utilities and Digital Transmission	
	4	Performance of networks	
2 nd week of MARCH	1	Frequency Domain and Time Domain, wave length	
	2	wave length , Fundamental limits in Digital Communication	
	3	The Nyquist Signalling rate	
	4	The Shannon channel capacity	
3 rd week of MARCH	1	Transmission Systems: properties of media and digital transmission Systems – Twisted Pair	
	2	Coaxial Cable, Optical Fibre,	
	3	Radio Transmission Infrared Light Error detection and correction – Error detection	
	4	Check sum problems	

4 th week of MARCH	1	Error detecting capability of a polynomial code	NS
	2	Multiplexing – frequency – Division, Time – Division, SONET; Wavelength Division	
	3	Multiplexing Circuit switches; Telephone network, signaling Traffic and Overload control in Telephone networks	
	4	Message switching	
1 ST week of APRIL	1	Peer –to-Peer Protocols: - Peer-to peer Protocols and service models	
	2	ARQ Protocols stop and wait , Go –back-N	
	4	Selective Repeat, Transmission efficiency of ARQ	
	4	protocols, Other adaptation functions	
2 ND week of APRIL	1	Data link layer ,HDLC	
	2	Local Area Networks and Medium access Control Protocols:- Multiple access communications	
	3	Local Area network – LAN Structure	
	4	MAC Sublayer, Logical link control layer	
3RD week of APRIL	1	Logical Link Control (LLC), DLL (Data Link Layer)	
	2	Reservation Systems, polling, Token passing rings	
	3	comparison of Random access & Scheduling access control	
	4	Comparison of Radom access & SHEDULING MEDIUM access controls	
4 TH week of APRIL	1	INTERNALS	
	2	LAN Standard; Token Ring and IEEE 8025	
	3	LAN standard, FDDI Wireless LAN's	
	4	IEEE 802.11 Standards	
1st week of MAY	1	802.11ac, 802.11n	
	2	Mixed – media Bridges.	
	3	Packet Switching Networks: - Network services & Internal Network Operation; Packet Network Topology	
	4	Datagrams & VIRTUAL circuits; structure of switch/ Router,	
2ND week of MAY	1	Connectionless packet switching	
	2	Routing tables, Link state routing, congestion control algorithms	
	3	shortest path routing algorithms	
	4	Flooding , Dijkstra shortest path ,	

Vijaya College, R.V. Road, Bengaluru-560004

Department of Computer Science

ACADEMIC PLANNER 2025-2026

VI Semester BSc

1. Academic Planner with unitisation of the entire syllabus (on hourly basis)

TEACHER: BHARATHI MG

Name of the Department	Computer Science	Course: BSc VI Semester Subject Title: CA-C13T: PYTHON PROGRAMMING	
Semester	VI		
Week/Month	Day	Portions Planned for 1 hour	Teacher
3 rd week of FEB	1	Python Programming Language: Python Interpreter/Shell, Identifiers, Keywords, Statements and Expressions	MGB
	2	Variables, Operators, Precedence and Associativity, Data types, Indentation, Comments, Reading Input, Print Output	
	3	Type Conversions, The type() function and Is operator	
	4	Dynamic and Strongly Typed Language. Control Flow Statements	
4 th week of Feb	1	The if Decision Control Flow Statement, The if...else Decision Control Flow Statement, The if...elif...else Decision Control Statement, Nested if Statement	
	2	The while Loop, The for Loop, The continue and break Statements.	
	3	Functions: Built-In Functions, Commonly Used Modules, Function Definition and Calling the Function,	
	4	The return Statement and void Function,	
1 ST week of MARCH	1	Scope and Life time of Variables	
	2	Default Parameters	
	3	Command Line Arguments.	
	4	Strings: Creating and Storing Strings	
2 nd week of	1	Basic String operations	

MARCH	2	Accessing Characters in StringbyIndexNumber	MGB
	3	String Slicing and Joining	
	4	String methods	
3 rd week of MARCH	1	Lists: Creating Lists, BasicListOperations, Indexing and Slicing in Lists	
	2	Built-In Functions Used on Lists	
	3	List Methods, The del Statement	
	4	Dictionaries:Creating Dictionary	
4 th week of MARCH	1	value pairs in Dictionaries	
	2	Built-In Functions Used on Dictionaries	
	3	Dictionary methods	
	4	Tuples and Sets:	
1 ST week of APRIL	1	Creating Tuples	
	2	Basic Tuple Operations	
	4	Indexing in Tuples	
	4	Slicing in Tuples	
2 ND week of APRIL	1	Built-In Functions Used onTuples	
	2	Relations between Tuples and Lists	
	3	Relations between Tuples and Dictionaries	
	4	Tuple Methods	
3RD week of APRIL	1	Using zip() Function	
	2	Sets	
	3	Set Methods,	
	4	Frozenset.	
4 TH week of APRIL	1	Files: Types of files, Creating and Reading Text Data, File Methods to Read and Write Data, Reading and Writing Binary Files	
	2	The Pickle module, Reading and writing CSV files	
	3	Object-Oriented Programming: Classes and Objects, Creating Classes in Python, Classes with Multiple Objects	
	4	, Class Attributes versus Data attributes,Creating Objects in Python, The Constructor Method	
1st week of MAY	1	Encapsulation, The Polymorphism	
	2	Inheritance, Data Visualization	
	3	Plotting a Simple Line Graph, Random Walks, Rolling Dice with Plotly	
	4	Downloading Data- The CSV File Format, Mapping Global Data Sets: JSON Format	

2ND week of MAY	1	Distributed Memory MIMD Architectures	
	2	Interconnection structures.	
	3	Working with APIs: Using a Web API	
	4	Visualizing Repositories Using Plotly	