Vijaya College, RV Road, Bengaluru-560004
Department of Computer Science

CURRICULAR ASPECTS for the academic year 2022-2023(ODD SEMESTER)

Academic Planner with unitisation of the Entire Syllabus

Name of the Department	**Computer Science**	**Subject Title**	**Teacher**
Semester	**I BCA**	**CA-C3T: DATA STRUCTURES**	**KMS**
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 3 hour per week**	
2nd week of sep 2022	1	UNIT-I Introduction and Overview: Definition, Elementary data organization,	**KMS**
	2	Data Structures, data Structures operations, Abstract data types	**KMS**
	3	Preliminaries: Mathematical notations and functions, Algorithmic notations, control structures,	**KMS**
3rd week of sep 2022	1	Arrays: Definition, Linear arrays, arrays as ADT	**KMS**
	2	Representation of Linear Arrays in	**KMS**

		Memory, Traversing	
	3	Linear arrays, Inserting and deleting, Multi-dimensional arrays,	**KMS**
4th week of sep 2022	1	Matrices and Sparse matrices	**KMS**
	2	algorithms complexity, time-space trade off. [ASSIGNMENT 1- GIVEN]	**KMS**
	3	UNIT-II Linked list: Definition, Representation of Singly Linked List in memory,	**KMS**
1st Week of oct 2022	1	Traversing a Singly linked list , Searching in a Singly linked list, Memory allocation, Garbage collection	**KMS**
	2	Insertion into a singly linked list, Deletion from a singly linked list;	**KMS**
	3	Doubly linked list, Header linked list, Circular linked list.	**KMS**
2nd week of	1	Stacks: Definition,	**KMS**

oct 2022		Array representation of stacks, Linked representation of stacks,	
	2	Stack as ADT, Arithmetic Expressions: Polish Notation, Conversion of infix expression to postfix expression	**KMS**
	3	Evaluation of Post fix expression, Application of Stacks, Recursion, Towers of Hanoi,	**KMS**
3rd week of oct 2022	1	Implementation of recursive procedures by stack. Queues: Definition, Array representation of queue, Linked list representation of queues.	**KMS**
	2	Types of queue : Simple queue, Circular queue,	**KMS**
	3	Operations on Queues, Applications of queues	**KMS**
4th week of oct 2022	1	UNIT-III Binary Trees: Definitions, Tree Search,	**KMS**

		Traversal of Binary Tree,	
	2	Tree Sort, Building a Binary Search Tree, Contiguous Representation of Binary Trees	**KMS**
	3	Heaps, Lexicographic Search Trees: Tries,	**KMS**
5th week of oct 2022	1	Graphs: Mathematical Back ground, Computer Representation, Graph Traversal,	**KMS**
	2	UNIT-IV Searching: Introduction and Notation, Sequential Search, Binary Search	**KMS**
	3	Comparison of Methods. Sorting: Introduction and Notation, [ASSIGNMENT-2 GIVEN]	**KMS**
1st Week of Nov 2022	1	Selection Sort, Shell Sort,	**KMS**

	2	Merge sort for Linked List, Quick sort for	**KMS**
	3	Contiguous List. Hashing: Sparse Tables,	**KMS**
2nd Week of Nov 2022	1	Collision Resolution with Open Resolution by Chaining	**KMS**
	2	Choosing a Hash function, Insertion Sort, Addressing, Collision	**KMS**
	3	Divide And Conquer Topological Sorting	**KMS**
3rd week of Nov 2022	1	Double-ended queue, Priority queue	**KMS**
	2	External Searching: B-Trees, Applications of Trees	**KMS**
	3	Height Balance AVL Trees,	**KMS**
4th week of Nov 2022	4	Complexity of algorithms, asymptotic notations for complexity of algorithms.	**KMS**
1st Week of	1	[REVISION 1]	**KMS**

Dec 2022		Array representation of queue, Linked list representation of queues	
2nd Week of Dec 2022	2	[REVISION-2] Arithmetic Expressions: Polish Notation, Conversion of infix expression to postfix expression	**KMS**
3rd week of Dec 2022	3	[REVISION-3] Traversing a Singly linked list searching in a Singly linked list, Memory allocation	**KMS**
4th week of Dec 2022	4	Class test conducted	**kms**

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Academic year-2022-2023

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

Name of the Department	Computer Science	Subject Title	Teacher
Semester	**1 BCA**	**CA-C1T:DISCRETE STRUCTURES**	**MGB**
Week/Month	**Day**	**Portions Planned for 1 hour**	
2nd week of OCT 2021	1	UNIT – I Set Theory and Logic: Fundamentals of Set theory, Set Operations	MGB
	2	Laws of Set Theory	MGB
	3	Counting and Venn Diagrams	MGB
3rd Week of OCT	1	EXAMPLE problems onCounting and Venn Diagrams	MGB
	2	Relations,problems on relations,types of relations	MGB
	3	Functions–One-to-One, Onto Functions, Function Composition and Inverse Function	MGB
4th Week of OCT	1	Mathematical Induction, The well ordering principle	MGB
	2	, Recursive Definitions, Structural Induction, Recursive algorithms	MGB
	3	Fundamentals of Logic, Propositional Logic,	
1st week of NOV	1	Logical Connectives and Truth Tables,	MGB
	2	Logic Equivalence, Predicates and Quantifiers, Nested Quantifiers	MGB
	3	Rules of Inference, Introduction to Proofs. Proof Methods	MGB

		and strategy.	
2nd week of NOV	1	UNIT - II :Counting and Relations: Basics of counting, Pigeonhole Principle	MGB
	2	Permutation and	MGB
	3	Combinations ,Binomial coefficients	MGB
3rd week ofNOV	1	Recurrence relations, Modeling with recurrence relations with examples of Fibonacci numbers	MGB
	2	Divide and Conquer relations with examples (no theorems). Definition and types of relations, Representing relations using matrices and digraphs	MGB
	3	Matrices: Definition, order of a matrix, types of matrices	MGB
4th week of NOV	1	operations on matrices, determinant of a matrix,	MGB
	2	inverse of a matrix, rank of a matrix,	MGB
	3	linear transformations,	MGB
1st week of DEC	1	applications of matrices to solve system of liner equations	MGB
	2	Graph Theory: Graphs: Introduction, Representing Graphs, G	MGB
	3	Graph Isomorphism, Operations on graphs. Trees: : Introduction, Applications of Trees, Tree Traversa	MGB
2nd week of DEC	1	Spanning Trees, Minimum Spanning Trees, Prim's and Kruskul's Algorithms	MGB
	2	. Connectivity, Euler and Hamilton Paths, Planar Graphs	MGB
	3	Directed graphs: Fundamentals of Digraphs	MGB
3rd week of DEC	1	Computer Recognition - Zero-One Matrices and Directed Graphs, Out-degree, in-degree, connectivity, orientation, Eulerian and Hamilton directed graphs, tournaments.	MGB
	2	Test1	MGB

	3	Discussing previous year question paper	MGB

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

Name of the Department	Computer Science	Subject Title	Teacher
Semester	**1 SEM/BCA**	**CA-C2T: PROBLEM SOLVING TECHNIQUES**	NS
Week/Month	**Day**	**Portions Planned for 1 hour**	
2nd week of sep 2022	1	Introduction: The Role of Algorithms in Computing	NS
	2	Algorithms as a technology	NS
	3	Analyzing algorithms	NS
3rd week of sep 2022	1	Designing algorithms	NS
	2	Growth of Functions	NS
	3	Asymptotic notation	NS
4thWeek of Sep 2022	1	Standard notations and common functions.	NS
	2	Fundamental Algorithms: Exchanging the values of two variables, Counting.	NS
	3	Summation of a set of numbers	NS
1st week of Oct 2022	1	Factorial Computation	NS
	2	Generating of the Fibonacci sequence	NS
	3	Reversing the digits of an integer	NS

2nd week of oct 2022	1	Character to number conversion	NS
	2	C Programming: Getting Started, Variables and Arithmetic expressions.	NS
	3	Input and Output: Standard input and output	NS
3rd week of Oct 2022	1	Formatted output- printf, variable length argument list	NS
	2	formatted input-scanf	NS
	3	Control Flow: Statements and Blocks, If-else, else-if	NS
4th week of Oct 2022	1	Control Flow: switch	NS
	2	loops: while loop	NS
	3	for loop	NS
5th week of Oct 2022	1	do while	NS
	2	break and continue	NS
	3	goto and labels	NS
1st week of Nov 2022	1	Pointers and Arrays	NS
	2	pointers and address	NS
	3	pointers and function arguments	NS
2nd week of Nov 2022	1	multidimensional array, initialization of pointer arrays, command line arguments	NS
	2	Factoring Methods: Finding the square root of a number	NS
	3	the smallest Divisor of an integer	NS
3rd week of Nov 2022	1	INTERNALS	NS
	2	the greatest common divisor of two integers, computing the prime factors of an integer	NS
	3	generation of pseudo random numbers, raising a number to a large power.	NS
	1	Array Techniques: Array order Reversal, Array counting or Histogramming	NS
	2	Finding the maximum number in a set	NS

4th week of Nov	3	removal of duplicates from an ordered array, partitioning an array	NS
1st week of Dec 2022	1	Finding the kth smallest element	NS
	2	multiplication of two matrices.	NS
	3	Merging: the two-way merge. Sorting: Sorting by selection, sorting by exchange, sorting by insertion	NS
2nd week of Dec 2022	1	sorting by diminishing increment, sorting by partitioning..	NS
	2	Searching: binary search, hash search	NS
	3	Text processing and Pattern searching: text line length adjustment, keyword searching in text, text line editing, linear pattern search	NS
3rd week of Dec 2022	1	REVISION	NS
	2	REVISION	NS
	3	REVISION	NS
4th week of Dec 2022	1	CLASS TEST	
	2	CLASS TEST	NS
	3	TEST	NS

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

Name of the Department	**Computer Science**	**Subject Title**	**Teacher**
Semester	**3 SEM/BCA**	**CA-C3T: COMPUTER NETWORKS**	NS
Week/Month	**Day**	**Portions Planned for 1 hour**	
2nd week of sep 2022	1	**Introduction**: Networks, Network Types, Internet History,	NS
	2	Standards and Administration, Network Models: Protocol Layering, TCP/IP Protocol Suite,	NS
	3	The ISO Model.	NS
3rd week of sep 2022	1	**Introduction to physical layer**: Data and Signals, Transmission impairment, Data rate limits, Performance,	NS
	2	Transmission media: Introduction, Guided Media, Unguided Media,	NS
	3	Switching: Introduction, Circuit Switched Networks, Packet switching	NS
4thWeek of Sep 2022	1	**introduction to Data Link Layer**: Introduction, Link layer addressing, Error detection and Correction:	NS
	2	Fundamental Algorithms: Exchanging the values of two variables, Counting.	NS
	3	Cyclic codes, Checksum, Forward error correction, Data link control: DLC Services,	NS
1st week of Oct 2022	1	Datalink layer protocols, HDLC, Point to Point Protocol,	NS
	2	Media Access control: RandomAccess,	NS
	3	Controlled Access, Channelization,	NS
2nd week of oct 2022	1	**The Network Layer**: Network layer design issues,	NS
	2	Congestion control algorithms,.	NS
	3	The network layer in the Internet:	NS
	1	Quality of service,	NS

3rd week of Oct 2022	2	IPV6	NS
	3	IPV4Addresses, ,	NS
4th week of Oct 2022	1	Internet Control protocol,	NS
	2	OSPF	NS
	3	BGP	NS
5th week of Oct 2022	1	IP,	NS
	2	ICMPv4,	NS
	3	. IGMP	NS
1st week of Nov 2022	1	Performance problems in computer networks,	NS
	2	Internetworking,	NS
	3	Routing algorithms,	NS
2nd week of Nov 2022	1	Routing algorithms,	NS
	2	LANs: ConnectingDevices.	NS
	3	Connecting devices and virtual	NS
3rd week of Nov 2022	1	Connecting devices and virtual	NS
	2	Control, The internet transport protocols:	NS
	3	. Control, The internet transport protocols:	NS
4th week of Nov	1	UDP,	NS
	2	TCP	NS
	3	Network performance measurement	NS
1st week of Dec 2022	1	**Introduction to Application Layer**: Introduction,	NS
	2	Client Server Programming,	NS
	3	WWW andHTTP,	NS
2nd week of Dec 2022	1	FTP, e-mail,	NS

	2	TELNET, Secure Shell,	NS
	3	Domain Name System, SNMP	NS
3rd week of Dec 2022	1	REVISION	NS
	2	REVISION	NS
	3	REVISION	NS
4th week of Dec 2022	1	CLASS TEST	
	2	CLASS TEST	NS
	3	TEST	NS

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

Name of the Department	Computer Science	Subject Title	Teacher
Semester	**III**	**CA-C11T: OPERATING SYSTEMS**	
Week/Month	**Day**	**Portions Planned for 1 hour**	
1st Week of Nov	1	UNIT - I Introduction	JK
	2	Computer System Organization, Architecture, Structure	JK
	3	Process Management	JK
2nd Week of Nov	1	Memory Management	JK
	2	Storage Management	JK
	3	Kernel Data Structures	JK
3rd Week of Nov	1	Computing Environments	JK
	2	Operating System Structures: Services, System Calls	JK
	3	Types, Operating System Structure, System Boot	JK

4th Week of Nov	1	Processes: Process Concept, Scheduling	JK
	2	Operations, Interprocess Communication	JK
	3	Multithreaded Programming: Multicore Programming, Multithreading Models	JK
1st Week of Dec	1	UNIT –II Process Synchronization	JK
	2	The Critical-Section Problem, Peterson's Solution	JK
	3	Synchronisation Hardware, Mutex Locks	JK
2nd Week of Dec	1	Semaphores, Classic Problems of Synchronization	JK
	2	Monitors, Synchronization Examples	JK
	3	Process Scheduling: Criteria, Scheduling Algorithms	JK
3rd Week of Dec	1	Multi-Processor Scheduling	JK
	2	Real-time CPU Scheduling	JK
	3	Deadlocks: System model, Characterization	JK
4th Week of Dec	1	Methods for handling deadlocks	JK
	2	Deadlock Prevention, Avoidance, Detection and Recovery from deadlock	JK
	3	Assignment 1 – covering all the above topics	JK
1st Week of Jan	1	UNIT – III Memory Management Strategies	JK
	2	Background, Swapping, Contiguous Memory Allocation	JK
	3	Segmentation, Paging	JK
2nd Week of Jan	1	Structure of the Page Table. Virtual Memory Management	JK
	2	Demand Paging, Copy-on-Write	JK
	3	Page Replacement; Allocation of Frames	JK
3rd Week of Jan	1	Thrashing, Memory-Mapped Files	JK
	2	Allocating Kernel Memory.	JK
	3	File System: File Concept, Access Methods	JK
4th Week of Jan	1	Directory and Disk Structure, Protection, File-System Implementation: Structure	JK

	2	Internal Assessment	JK
	3	UNIT – IV File-System and Directory Implementation	JK
1st Week of Feb	1	Allocation Methods, Free Space Management	JK
	2	Efficiency and Performance, Recovery	JK
	3	Mass-Storage Structure: Overview, Disk Scheduling	JK
2nd Week of Feb	1	Disk Management, Distributed Systems: Advantages	JK
	2	Types of Network- based OS, Robustness, Design Issues	JK
	3	Distributed File Systems	JK
3rd Week of Feb	1	Case Studies: The Linux System	JK
	2	Windows 10 (Process, Memory, storage management)	JK
	3	Assignment and Discussion on above topics	JK

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

Name of the Department	Computer Science	Subject Title	Teacher
Semester	**III sem BCA**	**CA-C11T: OPERATING SYSTEMS**	**HDS**
Week/Month	**Day**	**Portions Planned for 1 hour**	**HDS**
1st Week of Nov	1	**Python Programming Language: Introduction,** Python Interpreter/Shell, Identifiers, Keywords, Statements and Expressions	**HDS**
	2	Variables, Operators, Precedence and Associativity, Data types, Indentation, Comments, Reading Input, Print Output,	**HDS**
	3	Type Conversions, The type() function and Is operator, Dynamic and Strongly Typed Language.	**HDS**
2nd Week of Nov	1	**Control Flow Statements:**The if Decision Control Flow Statement, The if…else DecisionControl FlowStatement, The if…elif…else Decision Control Statement, Nested if Statement, The while Loop, The for Loop,	**HDS**
	2	The continue and break Statements. **Functions**: Built-In Functions, Commonly Used Modules,	**HDS**
	3	Function Definition and Calling the Function, The return Statement and void Function, Scope and Life time of Variables,	**HDS**
3rd Week of Nov	1	Default Parameters, Command Line Arguments.	**HDS**
	2	**Strings:** Creating and Storing Strings, Basic String operations,Accessing Characters in StringbyIndexNumber,	**HDS**
	3	String Slicing and Joining, String methods	**HDS**
4th Week of Nov	1	**Lists:** Creating Lists, BasicListOperations, Indexing and Slicing in Lists	**HDS**
	2	Built-In Functions Used on Lists, List Methods,	**HDS**
	3	ThedelStatement, **Dictionaries:** Creating Dictionary, Accessing and modifying key:	**HDS**
1st Week of Dec	1	value pairs in Dictionaries, Built-In Functions Used on Dictionaries,	**HDS**

	2	Dictionary methods, ThedelStatement**.**	**HDS**
	3	**Tuples and Sets:** Creating Tuples,	**HDS**
2nd Week of Dec	1	Basic Tuple Operations, Indexing and Slicing in Tuples,	**HDS**
	2	Built-In Functions Used onTuples, Relations between Tuples and Lists,	**HDS**
	3	Relations between Tuples and Dictionaries,	**HDS**
3rd Week of Dec	1	Tuple Methods, Using zip() Function,	**HDS**
	2	Sets, Set Methods, Frozenset.	**HDS**
	3	Ist internal test	**HDS**
4th Week of Dec	1	Creating and Reading Text Data, File Methods to Read and Write Data	**HDS**
	2	Reading and Writing Binary Files,	**HDS**
	3	The Pickle module, Reading and writing CSV files	**HDS**
1st Week of Jan	1	**Object- Oriented Programming:**	**HDS**
	2	Classes and Objects,	**HDS**
	3	Creating Classes in Python,	**HDS**
2nd Week of Jan	1	Creating Objects in Python,	**HDS**
	2	The Constructor Method	**HDS**
	3	Classes with Multiple Objects	**HDS**
3rd Week of Jan	1	Class Attributes versus Data attributes	**HDS**
	2	Encapsulation, Inheritance,	**HDS**
	3	The Polymorphism.	**HDS**
4th Week of Jan	1	D**ata Visualization:**	**HDS**

	2	Generating Data-Installing Matplotlib	**HDS**
	3	Plotting a Simple Line Graph	**HDS**
1st Week of Feb	1	Random Walks	**HDS**
	2	Rolling Dice with Plotly.	**HDS**
	3	Downloading Data-	**HDS**
2nd Week of Feb	1	The CSV File Format	**HDS**
	2	Mapping Global Data	**HDS**
	3	Sets: JSON Format,	**HDS**
3rd Week of Feb	1	**Working with APIs:**	**HDS**
	2	Using a Web API, Visualizing Repositories Using Plotly.	**HDS**
	3	Revision classes	**HDS**

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NAAC criteria-1: CURRICULAR ASPECTS for the academic year **2022-2023**

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

ODD SEMESTER

Semester	**V**	**Paper**	**BCA504T**
Name of the Department	**Computer Science**	**Subject Title**	**Analysis and Design of Algorithm**
Week/Month & Date (Preferably)	**Day**	**Portions Planned**	**Teacher BEENA N**
1st Week of Nov 2022	1	Introduction to ADA: Algorithm, properties	BN
	2	Study of algorithms, algorithm examples-GCD:Eculids	BN
	3	GCD: CICA, repeated subtraction	BN
	4	Control structures	BN
2nd week of Nov 2022	1	Writing structured programming	BN
	2	Analysis of algorithm, difference between analysis and profiling.	BN
	3	Space complexity – iterative algorithms	BN
	4	Space complexity –recursive algorithms	BN
3rd week of Nov 2022	1	Time complexity, units of measuring running time.	BN
	2	Time complexity- operation count method	BN
	3	Time complexity-step count method	BN
	4	Asymptotic notations	BN
4th week of Nov 2022	1	Mathematical analysis of Non-recursive algorithms- max, uniqueness	BN
	2	Mathematical analysis of Recursive algorithms-factorial, Tower of Hanoi problem	BN
	3	Mathematical analysis of Non-recursive algorithms- fibonnaci series. **ASSIGNMENT-1**	BN
	4	Divide and Conquer- general method, control abstraction.	BN
1st Week of Dec 2022	1	MaxMin problem	BN
	2	Linear search, Binary Search	BN
	3	Searching analysis	BN
	4	Merge sort	BN

2nd Week of Dec 2022	1	Merge sort analysis	BN
	2	Quick sort	BN
	3	Quick sort analysis	BN
	4	Advantages and disadvantages of divide and conquer	BN
3rd week of Dec 2022	1	Greedy method – general method, control abstraction	BN
	2	Knapsack problem- objective, algorithm	BN
	3	Knapsack problems solving	BN
	4	0/1 knapsack problem	BN
4th week of Dec 2022	1	Job sequencing with deadlines **ASSIGNMENT-2**	BN
	2	Minimum spanning tree – prim's algorithm	BN
	3	Minimum spanning tree – Kruskal's algorithm	BN
	4	Single source shortest path – Dijkstra's algorithm.	BN
5th week of Dec 2022	1	Single source shortest path-problem solving	BN
	2	Dynamic programming-Introduction to graphs, definition, types	BN
	3	Terms related to graphs	BN
	4	Graph representation – adjacency matrix , adjacency list	BN
1ST Week of Jan 2023		Internal Assessment	BN
2nd week of Jan 2023	1	Dynamic programming- general method , principle of optimality	BN
	2	Multistage graph- forward approach	BN
	3	Problem solving using forward approach	BN
	4	Problem solving using backward approach	BN
3rd week of Jan 2023	1	Problem solving using backward approach	BN
	2	All pair shortest path- Floyd	BN
	3	0/1 knapsack problem **ASSIGNMENT-3**	BN
	4	Travelling salesman problem	BN
4th week of Jan 2023	1	Travelling salesman problem	BN

	2	Flow shop scheduling	BN
	3	Basic traversal and search technique-introduction to trees. Basic terminology	BN
	4	Binary tree- definition, properties	BN
1st Week of Feb 2023	1	Binary tree traversal	BN
	2	Graph traversal and search techniques- Depth-First search	BN
	3	Breath- First search.	BN
	4	Back tracking – control abstraction, general method	BN
2nd Week of Feb 2023	1	8 queen problem	BN
	2	8 queen problem	BN
	3	Sum of subsets, graph coloring	BN
	4	Sum of subsets, graph coloring **ASSIGNMENT-4**	BN
3rd week of Feb 2023	1	Revision	BN
	2	Revision	BN
	3	Revision	BN
	4	Practise test	BN
4th week of Feb 2023	1	Revision/test	BN
	2	Revision/test	BN
	3	Revision/test	BN
	4	Revision/test	BN

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NAAC criteria-1: CURRICULAR ASPECTS for the academic year **2022-2023**

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

Name of the Department	**computer science**	**Course: BCA V Semester** **Subject Title:** **BCA502T: ARTIFICIAL INTELLIGENCE**	**computer science**
Semester	**V**	**Paper**	**BCA502T**
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 1 hour**	**Teacher**
1st week Nov 2022	1	INTRODUCTION OF THE SUBJECT	**Hemalatha N** **(HML)**
	2	**UNIT-I** [13 Hours] Introduction to Artificial Intelligence: Definition,	
	3	AI Applications, AI representation,	
2nd week Nov 2022	1	Properties of internal Representation,	
	2	, Heuristic search techniques	
	3	Best first search,	
	4	Best first search	
	5	,mean and end analysis,	
3rd week Nov 2022	1	A* and	
	2	AO* Algorithm	
	3	Game Playing	
	4	Game Playing	
	5	search procedure	
4th week Nov 2022	1	Alpha beta cutoffs. Review questions discussion ASSIGNMENT 1 on unit -1	
	2	**UNIT-II** [13 Hours] Knowledge representation using predicate logic: predicate calculus,	

	3	Predicate and arguments	
	4	Knowledge representation using non monotonic logic: TMS (Truth maintenance system),	
	5	statistical and probabilistic reasoning	
5TH week Nov 2022	1	fuzzy logic	
	2	fuzzy logic	
1st week Dec 2022	1	structure knowledge representation,	
	2	structure knowledge representation,	
	3	semantic net	
2nd week Dec 2022	1	semantic net	
	2	Frames	
	3	Script,	
	4	Conceptual dependency. ASSIGNMENT 2 on unit -2	
	5	**UNIT-III** [13 Hours] Planning: block world,	
3rd week Dec 2022	1	Strips	
	2	Implementation using goal stack,	
	3	Non linear planning with goal stacks	
	4	, Hierarchical planning	
	5	list commitment strategy.	
4th week Dec 2022	1	Perception: Action	
	2	Robot Architecture	
	3	Robot Architecture	
	4	, Vision	
	5	Texture and images,	
5th week Dec 2022	1	representing and recognizing scenes.	
	2	representing and recognizing scenes. ASSIGNMENT 3 on unit -3	

	3	**UNIT-IV** [13 Hours] Learning: Learning as induction matching algorithms.	
	4	Learning: Learning as induction matching algorithms.	
	5	Failure driver learning,	
1st week Jan 2023	1	learning in general problem solving concept learning.	
	2	learning in general problem solving concept learning.	
	3	Neural Networks: Introduction to neural networks	
	4	Neural Networks: Introduction to neural networks	
	5	perception-qualitative Analysis only	
1st week Jan 2023	1	perception-qualitative Analysis only	
	2	, and perception-qualitative Analysis only	
	3	and perception-qualitative Analysis only	
	4	neural net architecture and applications.	
	5	neural net architecture and applications. ASSIGNMENT 4 on unit – 4	
2nd week Jan 2023	1	**UNIT-V** [13 Hours] Natural language processing and understanding and pragmatic	
	2	, syntactic,	
	3	semantic,	
	4	analysis	
	5	RTN,	
3rd Week Jan 2023	1	RTN	
	2	, ATN,,	
	3	understanding sentences.	
	4	Expert system: Utilization and functionality	
	5	architecture of expert system,	
4th Week Jan 2023	1	knowledge representation	
	2	two case studies on expert systems. ASSIGNMENT 5 on unit - 5	
	3	Doubt clarification	

	4	Question papers Review	
5th Week Jan 2023	1	Question papers Review	1
	2	Question papers Review	
1st Week Feb 2023	1	Question papers Review	
	2	Question papers Review	
	4	Dialog Boxes	
4th week of December-2020	1	Importing VBX Controls	
	2	Files	
	3	MFC File Handling	
	4	Document View Architecture	
5th week of December-2020 and 1st week of January-2021	1	Serialization	
	2	Interfacing Other Applications	
	3	Multiple Document Interface (MDI)	
	4	**ASSIGNMENTS- 3 & 4**	
2nd week of January-2021	1	Splitter Windows	
	2	Exception Handling	
	3	Debugging	
	4	Object Linking and Embedding (OLE)	
3rd week of January-2021	1	Database Application	
	2	DLL, ODBC	
	3	**TEST-2**	
	4	**Model Question paper Discussion**	

Vijaya College, RV Road , Bengaluru-560004.

Department of Computer Science

Academic year 2021-2022

BCA503T- JAVA PROGRAMMING

Academic Planner with unitization of the entire syllabus(on hourly basis)

Name of the Department	**Computer science**	**Subject Title**	**JAVA PROGRAMMING**
Semester	**V**	**Paper**	**BCA**
Week/Month & Date(Preferably)	**Day**	**Portions Planned for 1 hour**	**TEACHER**
1st week of nov 2022	1	Introduction to to JAVA: JAVA Evolution: Java History, Java Features,	BL
	2	How Java Differs from C and C++, Java and Internet,	BL
	3	Java and World Wide Web, Web Browsers, Hardware and Software Requirements,	BL
	4	Java Support Systems, Java Environment.	BL
2nd week of nov 2022	1	Overview of JAVA Language: Introduction, Simple Java program	BL
	2	More of Java Statements, Implementing a Java Program, Java Virtual Machine,	BL
	3	Command Line Arguments, Programming Style	BL
	4	Introduction, Constants, Variables, Data Types	BL
3rd week of nov 2022	1	Declaration of Variables, Giving Values to Variables, Scope of Variables, Symbolic Constants	BL
	2	Type Casting, Getting Values of Variables,	BL

		Standard Default Values	
	3	Operators and Expressions:	BL
	4	Introduction, Arithmetic Operators, Relational Operators Logical Operators, Assignment Operators, Increment and Decrement Operators,	BL
4th week of NOV 2022	1	Conditional Operators, Bitwise Operators, Special Operators, Arithmetic Expressions, Evaluation of Expressions	BL
	2	Precedence of Arithmetic Operators	BL
	3	Type Conversion and Associativity, Mathematical Functions. Decision Making and Branching	BL
	4	The Switch Statement, The ?: Operator. Decision Making and Looping:	
5th week of NOV 2022	1	Introduction. The while Statement, The do Statement, The for Statement, Jumps in Loops Labelled Loops.	BL
	2	Unit – II Classes, Arrays, Strings and Vectors: Classes, Objects and Methods: Introduction, Defining a Class, Adding Variables, Adding Methods, Creating Objects	BL
	3	Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods	BL
	4	Inheritance: Extending a Class Overriding Methods, Final Variables and Methods,	BL
1st week of dec 2022	1	Finalizer methods, Abstract Methods and Classes, Visibility Control. Arrays, Strings and Vectors: Arrays, Onedimensional Arrays	BL
	2	Creating an Array, Two -Dimensional Arrays, Creating an Array, Two –	BL

		dimensional Arrays, Strings, Vectors, Wrapper Classes.	
	3	Unit - III Interfaces, Packages, and Multithreaded Programming: Interfaces: Multiple Inheritance: Introduction,	BL
	4	Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables.	BL
2nd week of DEC 2022	1	Packages: Putting Classes together: Introduction, Java API Packages, Using System Packages, Naming Conventions	BL
	2	Creating Packages, Accessing a Package, Using a Package, Adding a Class to a Package, Hiding Classes	BL
	3	Multithreaded Programming: Introduction, Creating Threads, Extending the Thread Class	BL
	4	Stopping and Blocking a thread, Life Cycle of a thread, Using Thread Methods	BL
3rd week of DEC 2022	1	Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface	BL
	2	Unit - IV Managing Exceptions, Applet Programming: Managing Errors and Exception: Introduction	BL
	3	Types of Exception Handling Code, Multiple Catch Statements, Using Finally Statement, Throwing Our Own Exceptions, Using Exceptions for Debugging.	BL
	4	Applet Programming: Introduction, How Applets Differ from Applications,	BL
4th WEEK OF DEC 2022	1	Preparing to Write Applets, Building Applet Code, Applet Life Cycle, Creating an Executable applet, Designing a Web Page	BL
	2	Applet Tag, Adding Applet to HTML File, running the Applet	BL
	3	Test	BL

	4	Test	BL
5th week of dec 2022	1	More About HTML Tags, Displaying Numerical Values,	BL
	2	Getting Input from the User.	BL
	3	Unit - V Graphics Programming, Input/Output: Graphics programming: Introduction	BL
	4	The Graphics Class, Lines and rectangles, circles, and Ellipses,	BL
1st week of jan 2022	1	Drawing Arcs, Drawing Polygons	BL
	2	Lines Graphs, Using Control Loops in Applets	BL
	3	Drawing Bar Charts.	BL
	4	Introduction, Concept of Streams	BL
2nd week of jan 2022	1	Byte Stream Classes,	BL
	2	Character Stream Classes	BL
	3	Using Streams,	BL
	4	Input / Output Exceptions	BL
3rd week of jan 2022	1	Creation of Files	BL
	2	Displaying Numerical	BL
	3	Assignment1 given	BL
	4	Reading / Writing Bytes	BL
4th week of jan 2022	1	Handling Primitive Data Types	BL
	2	Managing Input/Output Files	BL
	3	Assignment 2 given	BL
	4	Other Useful I/O Classes	BL
5th week of jan 2022	1	I/O exceptions	BL

	2	Reader,Writer	BL
	3	Using control loops in applets	BL
	4	Drawing polygons	BL
1st week of FEB 2022	1	Using the File Class	BL
	2	Reading / Writing Characters	BL
	3	Concatenating and Buffering Files	BL
	4	Getting Input from the User	BL
2nd week of FEB 2022	1	Assignment 3 given	
	2	Interactive Input and output	
	3	Other Stream Classes.	
	4	Explanation of lab programs	
3rd week of FEB 2022	1	Explanation of lab programs	
	2	Question paper discussion	
	3	Revision	
	4	Question paper discussion	

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Department of Computer science

NAAC criteria-1: CURRICULAR ASPECTS for the academic year **2022-2023**

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

Name of the Department	**Computer science**	**Subject Title**	**DCN-BCA501T**
BCA	**V sem**	**Data Communication and Networks (DCN)**	**Teacher**
Week/Month	**Day**	**Portions Planned for 1 hour**	**SOWMYA S**
1st week of Nov 2022	1	Introduction: Communication Network and services	**SS**
	2	Approaches to Network Design, Network Functions	
	3	Network Topology	
	4	Message switching	
	5	packet Switching	
2nd week of Nov 2022	1	circuit Switching	**SS**
	2	Internet packet switching	
	3	Key factors in Communication Network Evolution	
	4	Layered Architecture and Applications – Examples of Layering	
	5	OSI Reference Model,	
3rd Week of Nov 2022	1	TCP/IP Model	**SS**
	2	Telnet FTP and IP Utilities.	
	3	IP Utilities and Digital Transmission	
	4	Digital Representation of Information, Properties of digital transmission	
	5	Characterization of Communication Channels	
4th Week of Nov 2022	1	Frequency Domain and Time Domain	**SS**
	2	Fundamental limits in Digital Communication – The Nyquist Signalling rate,	
	3	The Shannon channel capacity	
	4	Line coding , Modems	
	5	digital Modulations	
1st week of Dec	1	Transmission Systems: properties of media and digital	**SS**

2022		transmission Systems – Twisted Pair	
	2	Coaxial Cable, Optical Fibre,	
	3	Radio Transmission Infrared Light Error detection and correction – Error detection	
	4	Two – dimensional parity checks, Internet checksum	
	5	Polynomial code; standardized Polynomial codes	
2nd week of Dec 2022	1	Error detecting capability of a polynomial code	**SS**
	2	Multiplexing – frequency – Division, Time – Division, SONET; Wavelength Division	
	3	Multiplexing Circuit switches; Telephone network, signalling Traffic and Overload control in Telephone networks	
	4	Concentration, Routing Control	
	5	Overload controls Cellular Telephone Networks, Satellite Cellular networks.	
3rd week of Dec 2022	1	Peer –to-Peer Protocols: - Peer-to peer Protocols and service models	**SS**
	2	ARQ Protocols stop and wait , Go –back-N	
	3	Selective Repeat, Transmission efficiency of ARQ Protocols, Other adaptation functions	
	4	Sliding window flow control , Timing Recovery in Synchronous Services Reliable Stream Service	
	5	Data Link Control, HDLC, PPP ; Statistical Multiplexing	
4th week of Dec 2022	1	Local Area Networks and Medium access Control Protocols:- Multiple access communications	**SS**
	2	Local Area network – LAN Structure	
	3	MAC Sublayer, Logical link control layer	
	4	Random Access protocols ALOHA, Slotted ALOHA	
	5	CSMA, CSMA/CD, Scheduling approaches to medium access control	
1st week of Jan 2023	1	Reservation Systems, polling, Token passing rings	**SS**
	2	comparison of Random access & Scheduling access control	
	3	Comparison of Radom access & SHEDULING MEDIUM access controls	
	4	Channelization – FDMA, TDMA, CDMA	
	5	LAN Standard –Ethernet and IEF, 802.3	
2nd week of Jan 2023	1	LAN Standard; Token Ring and IEEE 8025	**SS**
	2	LAN standard, FDDI Wireless LAN's	
	3	IEEE 802.11 Standards	
	4	LAN Bridges – Transparent Bridges	
	5	Source Routing Bridges	
3rd week of Jan 2023	1	Mixed – media Bridges.	**SS**
	2	Packet Switching Networks: - Network services & Internal Network Operation; Packet Network Topology	
	3	Datagrams & VIRTUAL circuits; structure of switch/ Router, Connectionless packet switching	
	4	Virtual – Circuit packet switching	
	5	Overview of Routing and congestion in packet networks – Routing algorithms classification	

4th week of Jan 2023	1	Routing tables	**SS**
	2	shortest path routing algorithms	
	3	Flooding	
	4	Hierarchical routing	
	5	Distance vector routing	
1st week of Feb 2023	1	Link state routing	**SS**
	2	congestion control algorithms	
	3	Revision of unit-1	
	4	Revision of unit-1	
	5	Unit 1-Test	
2nd week of Feb 2023	1	Revision of unit-2	**SS**
	2	Revision of unit-2	
	3	Unit 2- Test	
	4	Revision of unit-3	
	5	Revision of unit-3	
3rd week of Feb 2023	1	Unit 3-Test	**SS**
	2	Revision of unit-4	
	3	Revision of unit-4	
	4	Unit 4 - Test	
	5	Revision of unit-5	
4th week of Feb 2023	1	Revision of unit-5	**SS**
	2	Unit 5-Test	
	3	Previous year Question paper Discussion	
	4	Previous year Question paper Discussion	
	5	Previous year Question paper Discussion	

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Department of Computer science

NAAC criteria-1: CURRICULAR ASPECTS for the academic years 2022-2023

2. Academic Planner with unitization of the entire syllabus (on hourly basis)

Name of the Department	**Computer science**	**Subject Title**	**DATA MINING**
BCA	**V sem**	**Paper**	**Elective II**
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 1 hour**	**Teacher Divya.S.R**
1st week of Nov 2022	1	Overview motivation for data mining	SRD
	2	Data mining- definition and functionalities	SRD
	3	Data Warehouse: Data, warehouse, data Warehouse, overview,	SRD
	4	Understanding a Data Warehouse, Why a Data Warehouse is separated from Operational Databases	SRD
	5	Data Warehouse Features	SRD
2nd week of Nov 2022	1	Data processing	SRD
	2	From of data preprocessing.	SRD
	3	Data Warehouse Applications, Types of Data Warehouse	SRD
	4	Difference b/n Data Warehouse (OLAP) and operational database(OLTP)	SRD
	5	Data warehouse: Data delivery	SRD
3rd Week of Nov 2022	1	Data cleaning: missing values,	SRD
	2	Data cleaning: noisy data, (binning, clustering, regression,)	SRD
	3	delivery method	SRD
	4	Data Warehousing - System Processes	SRD
	5	Process Flow in Data Warehouse	SRD
4th Week of Nov 2022	1	Data cleaning: computer and human inspection)	SRD
	2	Inconsistent data, data integration and transformation, data reduction	SRD
	3	Data Warehousing - Architecture	SRD

	4	Business Analysis Framework	SRD
	5	Three-Tier Data Warehouse Architecture	SRD
1st week of Dec 2022	1	Unit IV: concept description: definition , data generalization,	SRD
	2	Analytical characterization, analysis of attributes relevance,	SRD
	3	Data Warehouse Models,	SRD
	4	virtual warehouse, data mart,	SRD
	5	Enterprises warehouse	SRD

2nd week of Dec 2022	1	Mining class comparisons, statically measures in large databases	SRD
	2	Measuring central tendency, measuring dispersion of data, graph displays of basic statistical	SRD
	3	Data cube, stars, snow flakes,	SRD
	4	Fact constellations, concept hierarchy,	SRD
	5	Process architecture, 3 tier architecture, data mining	SRD
3rd week of Dec 2022	1	class description mining association, rules in large DB,	SRD
	2	Association rule mining, mining single-dimensional Boolean association rules from transaction rules from transactional DB	SRD
	3	Aggregation, historical information	SRD
	4	Query facility, OLAP function and tools	SRD
	5	OLAP servers, ROLAP, MOLAP, HOLAP,	SRD
4th week of Dec 2022	1	Apriori algorithms,	SRD
	2	Mining multi-level association rules	SRD
	3	Data mining interface, security, backup and recovery,	SRD
	4	Tuning data warehouse,	SRD
	5	testing data warehouse.	SRD
1st Week of Jan 2023	1	Unit V: classification and predictions	SRD
	2	What is classification and prediction	SRD
	3	Issues regarding classification and predication.	SRD
	4	Decision tree.	SRD
	5	Bayesian classification	SRD
2nd Week of Jan 2023	1	Transactional database and mining	SRD
	2	Multi-dimensional	SRD
	3	Classification by back propagation	SRD
	4	Multilayer feed forward neural network	SRD
	5	Back propagation algorithms	SRD
3rd Week of Jan 2023	1	Associational rules from relational database	SRD
	2	mining single-dimensional,	SRD
	3	Classification methods K-nearest neighbor classifiers	SRD
	4	Generic algorithms	SRD

	5	Cluster analysis	SRD
4th Week of Jan 2023	1	transaction rules	SRD
	2	ROLAP, MOLAP,	SRD
	3	Data types in cluster analysis	SRD
	4	k-Means Clustering. ...	SRD
	5	Hierarchical Clustering Algorithm. ...	SRD
1st week of Feb 2023	1	Data integration and compaction in data mining	SRD
	2	Multilevel association	SRD
	3	Mean Shift Clustering. ...	SRD
	4	DBSCAN – Density-based Spatial Clustering. ...	SRD
	5	Gaussian Mixed Models (GMM) with Expectation-Maximization Clustering.	SRD
2nd week of Feb 2023	1	Unit3: test1	SRD
	2	Unit3: test2	SRD
	3	Mean Shift Clustering. ...	SRD
	4	Fuzzy C Means Algorithm – FANNY (Fuzzy Analysis Clustering) ...	SRD
	5	types of back propagation networks. Static back propagation. Recurrent back propagation	SRD
3rd week of Feb 2023	1	Unit4: test1	SRD
	2	Unit4: test1	SRD
	3	Unit1: Test 1	SRD
	4	Unit1: Test2	SRD
	5	Unit2:test1	SRD
4th week of Feb 2023	1	Unit4: test3	SRD
	2	Unit4: test4	SRD
	3	Unit2:test2	SRD
	4	Unit5:test1	SRD
	5	Unit5:test1	SRD

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Department of Computer science

NAAC criteria-1: CURRICULAR ASPECTS for the academic years 2022-2023

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

Name of the Department	**Computer science**	**Subject Title**	**Theory of Computation**
BCA	**V sem**	**Paper**	**Elective I**
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 1 hour**	**Teacher: Vinutha V**
1st week of Nov 2022	1	**Unit – I :** Introduction to Finite Automata: The central concepts of Automata theory	VV
	2	Deterministic finite automata	VV
2nd week of Nov 2022	1	Applications of FA, types of FA	VV
	2	Deterministic finite automata : Design, pattern recognition problems	VV
	3	Deterministic finite automata : problem solving	VV
	4	DFA : problem solving	VV
	5	DFA : divisible by k problems	VV
3rd Week of Nov 2022	1	DFA : modulo k counter problem	VV
	2	Nondeterministic finite automata - examples	VV
	4	Nondeterministic finite automata problems	VV
	5	Finite automata with Epsilon transitions - Examples	VV
4th Week of Nov 2022	1	Finite automata with Epsilon transitions - problems	VV
	2	Finite automata with Epsilon transitions - problems	VV
	3	**Unit - II** Regular Expressions:	VV
	4	Finite Automata and Regular Expressions	VV
	5	Construction of DFA from regular expression	VV

1st week of Dec 2022	1	Construction of epsilon NFA from regular expression	VV
	2	Construction of epsilon NFA from regular expression	VV
	3	Construction of regular expression from FA, applications of regular expression	VV
	4	Pumping lemma for Regular languages	VV
	5	Applications of pumping lemma	VV

2nd week of Dec 2022	1	Decision properties of regular languages	VV
	2	Closure properties of regular languages;	VV
	3	Equivalence and minimization of automata	VV
	4	Equivalence and minimization of automata	VV
	5	minimization of automata - problems	VV
3rd week of Dec 2022	1	**Unit - III** Context–free grammars, types	VV
	2	CFG-language from CFG	VV
	3	CFG from FA	VV
	4	CFG from languages	VV
	5	Parse trees	VV
4th week of Dec 2022	1	Ambiguity in grammars and Languages.	VV
	2	Ambiguity in grammars and Languages.	VV
	3	Definition of the Pushdown automata	VV
	4	languages of a PDA	VV
	5	Construction of PDA	VV
1st Week of Jan 2023		Internal Assessment	
2nd Week of Jan 2023	1	Equivalence of PDA's and CFG's.	VV
	2	Normal forms for CFGs :chomsky's normal form	VV
	3	Normal forms for CFGs:chomsky's normal form	VV
	4	Normal forms for CFGs: Griebach normal form	VV
	5	The pumping lemma for CFGs	VV
3rd Week of Jan 2023	1	The pumping lemma for CFGs	VV
	2	Closure properties of CFLs. Problems that Computers cannot solve	VV
	3	Closure properties of CFLs. Problems that Computers cannot solve	VV
	4	**Unit – V** The Turing machine: Types of Turing Machines.	VV
	5	Programming techniques for Turing Machines.	VV
4th Week of Jan 2023	1	Programming techniques for Turing Machines.	VV
	2	Undecidability, A Language that is not recursively enumerable	VV

	3	Undecidability, A Language that is not recursively enumerable	VV
	4	Undecidability, A Language that is not recursively enumerable	VV
	5	An Undecidable problem that is RE	VV
1st week of Feb 2023	1	An Undecidable problem that is RE	VV
	2	Transducers : Automata with outputs	VV
	3	Transducers : Automata with outputs	VV
	4	Mealy Machine	VV
	5	Moore machine	VV
2nd week of Feb 2023	1	Designing simple counters with transdueers	VV
	2	Designing simple counters with transdueers	VV
	3	Revision	VV
	4	Revision	VV
	5	Revision	VV
3rd week of Feb 2023	1	Question papers discussion	VV
	2	Question papers discussion	VV
	3	Unit 1 test	VV
	4	Unit 2 test	VV
	5	Unit 3 test	VV
4^{th} week of Feb 2023	1	Unit 4 test	VV
	2	Unit 5 test	VV