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	**3RD SEMESTER BSc**	**CS-C5T: Object Oriented programming using Java**	**KMS**
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 4 hour per week**	
1st week of AUG	**1**	Introduction to to JAVA: JAVA Evolution: Java History, Java Features,	**KMS**
	2	How Java Differs from C and C++, Java and Internet,	**KMS**
	3	Java and World Wide Web, Web Browsers, Hardware and Software Requirements,	**KMS**
	4	Java Support Systems, Java Environment.	**KMS**
2nd week of AUG	**1**	Overview of JAVA Language: Introduction, Simple Java program	**KMS**

	2	More of Java Statements, Implementing a Java Program, Java Virtual Machine,	**KMS**
	3	Command Line Arguments, Programming Style	**KMS**
	4	Introduction, Constants, Variables, Data Types	**KMS**
3rd Week of AUG	**1**	Declaration of Variables, Giving Values to Variables, Scope of Variables, Symbolic Constants	**KMS**
	2	Type Casting, Getting Values of Variables, Standard Default Values	**KMS**
	3	Operators and Expressions:	**KMS**
	4	Introduction, Arithmetic Operators, Relational Operators Logical Operators, Assignment Operators, Increment and Decrement Operators, **Assignment1 given**	**KMS**
4th Week of AUG	**1**	Conditional Operators, Bitwise Operators, Special Operators, Arithmetic Expressions, Evaluation of Expressions	**KMS**
	2	Precedence of Arithmetic Operators	**KMS**
	3	Type Conversion and Associativity, Mathematical Functions. Decision Making and Branching	**KMS**
	4	The Switch Statement, The ?:	**KMS**

		Operator. Decision Making and Looping:	
1st week of OCT	**1**	Introduction. The while Statement, The do Statement, The for Statement, Jumps in Loops Labelled Loops.	**KMS**
	2	Unit – II **INHERITANCE AND POLYMORPHISM** Classes, Arrays, Strings and Vectors: Classes, Objects and Methods: Introduction, Defining a Class, Adding Variables, Adding Methods, Creating Objects	**KMS**
	3	Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods	**KMS**
	4	Inheritance: Extending a Class Overriding Methods, Final Variables and Methods,	**KMS**
2nd week of OCT	**1**	Finalizer methods, Abstract Methods and Classes, Visibility Control. Arrays, Strings and Vectors: Arrays, Onedimensional Arrays	**KMS**
	2	Creating an Array, Two - Dimensional Arrays, Creating an Array, Two – dimensional Arrays, Strings, Vectors, Wrapper Classes. **Assignment2 given**	**KMS**

	3	Unit - III **Event and GUI** Interfaces, Packages, and Multithreaded Programming: Interfaces: Multiple Inheritance: Introduction,	**KMS**
	4	Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables.	**KMS**
3rd week of OCT	**1**	Packages: Putting Classes together: Introduction, Java API Packages, Using System Packages, Naming Conventions	**KMS**
	2	Creating Packages, Accessing a Package, Using a Package, Adding a Class to a Package, Hiding Classes	**KMS**
	3	Multithreaded Programming: Introduction, Creating Threads, Extending the Thread Class	**KMS**
	4	Stopping and Blocking a thread, Life Cycle of a thread, Using Thread Methods	**KMS**
4th week of OCT	**1**	Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface	**KMS**
	2	Unit – IV **Multi threading in Java** Managing Exceptions, Applet Programming: Managing Errors and Exception: Introduction	**KMS**
	3	Types of Exception Handling	**KMS**

		Code, Multiple Catch Statements, Using Finally Statement, Throwing Our Own Exceptions, Using Exceptions for Debugging.	
	4	Applet Programming: Introduction, How Applets Differ from Applications, **Assignment3 given**	**KMS**
1st week of NOV	**1**	Preparing to Write Applets, Building Applet Code, Applet Life Cycle, Designing a Web Page	**KMS**
	2	Applet Tag, Adding Applet to HTML File, running the Applet	**KMS**
	3	**Internal test**	**KMS**
	4	Creating an Executable applet,	**KMS**
2nd week of NOV	**1**	More About HTML Tags, Displaying Numerical Values,	**KMS**
	2	Getting Input from the User.	**KMS**
	3	Creating Packages, Accessing a Package, Using a Package, Adding a Class to a Package, Hiding Classes	**KMS**
	4	Multithreaded Programming: Introduction, Creating Threads, Extending the Thread Class	**KMS**
3rd week NOV	**1**	Stopping and Blocking a thread, Life Cycle of a thread, Using Thread Methods	**KMS**

	2	Creating Packages, Accessing a Package, Using a Package, Adding a Class to a Package, Hiding Classes	**KMS**
	3	Multithreaded Programming: Introduction, Creating Threads, Extending the Thread Class	**KMS**
	4	Introduction, Concept of Streams, Stream Classes,	**KMS**
	1	Byte Stream Classes, Character Stream Classes	**KMS**
	2	Byte Stream Classes, Character Stream Classes	**KMS**
	3	Using Streams, Other Useful I/O Classes, Using the File Class,	**KMS**
	4	Input / Output Exceptions	**KMS**
4th week of NOV	1	Creation of Files, Reading / Writing Characters	**KMS**
	2	Displaying Numerical Values, Getting Input from the User	**KMS**
	3	**Assignment4 given**	**KMS**
	4	Reading / Writing Bytes	**KMS**
1st week of DEC	1	Handling Primitive Data Types	**KMS**
	2	Concatenating and Buffering Files	**KMS**
	3	Accessing a Package, Using a Package,	**KMS**
	4	Interactive Input and output, Other Stream Classes.	**KMS**

2nd week DEC	1	running the Applet PROGRAMS	**KMS**
	2	Class test -1conducted	**KMS**
	3	Preparing to Write Applets, Building Applet Code,	**KMS**
	4	Applet Tag, Adding Applet to HTML File, running the Applet	**KMS**
3rd week of DEC	1	Applet Life Cycle, Designing a Web Page	**KMS**
	2	Question paper discussion	**KMS**
	3	Revision	**KMS**
4th week of DEC	4	Class test -2 conducted	**KMS**

Vijaya College, RV Road, Bengaluru-560004

Department of Computer science

NAAC criteria-1: CURRICULAR ASPECTS for the academic year 2024-2025

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

Name of the Department	Computer science	Subject Title	BCA501T
BCA	V sem	CA-C10T: ARTIFICIAL INTELLIGENCE	Teacher
Week/Month	**Day**	**Portions Planned for 1 hour**	**SHILPAKALA**
1st week of AUG	1	Introduction to Al: What is AI?	SH
	2	Intelligent Agents: Agents and environment	
	3	the concept of Rationality	
	4	the nature of the environment	
	5	the structure of agents	
2nd week of AUG	1	Problem-solving: Problem solving agents	SH
	2	Uninformed search strategies: DFS	
	3	DFS BFS	
	4	BFS; Informed Search	
	5	Informed Search BFS	
3rd Week of AUG	1	Best First Search, A* search	SH
	2	A* search	
	3	AO* search	
	4	Write a program to solve the Water Jug Problem using (BFS).	
	5	Adversarial Search & Games	
4th Week of AUG	1	Two-player zero-sum games	SH
	2	Minimax Search	
	3	Alpha-Beta pruning.	
	4	Alpha-Beta pruning.	
	5	Write a program to find the optimum path from Source to Destination using A* search technique	
1st week of OCT	1	UNIT - II Knowledge-based Agents	SH
	2	The Wumpus world as an example world	
	3	The Wumpus world as an example world	
	4	Logic	
	5	Logic	
2nd week of OCT	1	Propositional logic	SH
	2	First-order predicate logic,	
	3	Propositional versus first-order inference	

	4	Unification and lifting,	
	5	Forward chaining,	
3rd week of OCT	1	Backward chaining	**SH**
	2	Write a program to solve the 4 – Queens Problem. Write a program to implement Minimax search for 2 Player games.	
	3	Resolution	
	4	Truth maintenance systems	
	5	Using OpenCV python library capture an image and perform the following image processing operations Write a program with two menu options 1) Capture Image and 2) Recognise Image	
4th week of OCT	1	Introduction to Planning:	**SH**
	2	Blocks World problem	
	3	Strips	
	4	Handling Uncertainties: Nonmonotonic reasoning	
	5	Probabilistic reasoning	
1st week of NOV	1	Fuzzy logic	**SH**
	2	Robotics: Fundamentals of Robotics	
	3	Robot Kinematics;	
	4	This program should capture pictures of five students and save them The program should identify/recognise the student and display the student name	
	5		
2nd week of NOV	1	Computer Vision: Introduction to image processing and classification	**SH**
	2	object detection	
	3	Natural Language Processing: Introduction	
	4	Syntactic Processing, Semantic Analysis	
	5	Semantic Analysis	
3rd week NOV	1	Discourse and Pragmatic Processing	**SH**
	2	Expert Systems: Architecture	
	3	role of expert systems	
	4	two case studies of Expert Systems	
	5	Introduction to Machine learning:	
4th week of NOV	1	Supervised learning	**SH**
	2	unsupervised learning	
	3	reinforcement learning	
	4	Neural Networks: Introduction	
	5	basics of ANN	
1st week of DEC 20	1	Use the Decision tree classifier to classify the dataset.	

		Use the Naïve Bayes classifier to classify the dataset.	**SH**
	2	Implement K-Means clustering Algorithm. Using Python NLTK, perform the following Natural Language Processing (NLP) tasks for any textual content. Write a program that uses Neural networks for image classification using Keras Iris dataset	
	3	Revision of unit-1	
	4	Revision of unit-1	
	5	Unit 1-Test	
2nd week DEC 20	1	Revision of unit-2	**SH**
	2	Revision of unit-2	
	3	Unit 2- Test	
	4	Revision of unit-3	
	5	Revision of unit-3	
3rd week of DEC 20	1	Unit 3-Test	**SH**
	2	Revision of unit-4	
	3	Revision of unit-4	
	4	Unit 4 - Test	
	5	Revision of unit-5	
4th week of DEC 20	1	Revision of unit-5	**SH**
	2	Unit 5-Test	
	3	Previous year Question paper Discussion	
	4	Previous year Question paper Discussion	
	5	Previous year Question paper Discussion	

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	**VBSC**	**Database Management System**	**KMS**
Week/Month & Date (Preferably)	**Day**	**Portions Planned for 1 hour**	
1st week of AUG	1	**UNIT I- Introduction:** Database and Database Users Characteristics of the Database Approach	**KMS**
	2	Different people behind DBMS, Implications of Database Approach.	**KMS**
	3	Advantages of using DBMS, When not to use a DBMS.	**KMS**
	4	Revision and important questions discussed	**KMS**
2nd week of AUG	1	**UNIT VI - Relational Data Model and Relational Algebra:** Relational Model Concepts., Relational Model Constraints and Relational Database Schema, Defining Relations, Update Operations on Relations.	**KMS**
	2	Basic Relational Algebra Operations, Additional Relational Operations ,Examples of Queries in the Relational Algebra.,	**KMS**
	3	Relational Database design Using ER – to – Relational Mapping.	**KMS**
	4	**UNIT VII -Relational Database Language:** Data definition in SQL, Queries in SQL, Insert, Delete and Update Statements in SQL	**KMS**
3rd Week of AUG	1	Queries in SQL, Insert, Delete and Update Statements in SQL	**KMS**
	2	Queries in SQL, Insert, Delete and Update Statements in SQL	**KMS**
	3	Queries in SQL, Insert, Delete and Update Statements in SQL	**KMS**

	4	Queries in SQL, Insert, Delete and Update Statements in SQL	**KMS**
4th Week of AUG	1	SQL querries	**KMS**
	2	Views in SQL, Specifying General Constraints as Assertions,	**KMS**
	3	Specifying indexes, Embedded SQL.	**KMS**
	4	Important question discussion	**KMS**
1st week of OCT	1	**UNIT II –Database System Concepts and Architecture:** Data Models, Schemas, and Instances., DBMS Architecture	**KMS**
	2	Data Independence., Database languages and interfaces., The Database system Environment,	**KMS**
	3	Classification of Database Management Systems.	**KMS**
	4	**UNIT III-Data Modeling Using the Entity-Relationship Model:** High level Conceptual Data Models for Database Design with an example., Entity types, Entity sets, Attributes, and Keys, ER Model Concepts	**KMS**
2nd week of OCT	1	Notation for ER Diagrams, Proper naming of Schema Constructs, Relationship types of degree higher than two.	**KMS**
	2	**UNIT V- Functional Dependencies and Normalization for Relational Databases:** Informal Design Guidelines for Relational Schemas, Functional Dependencies, Normal Forms Based on Primary Keys.	**KMS**
	3	General Definitions of Second and Third Normal Forms, Boyce–Codd Normal Form	**KMS**
	4	Example of normalisation	**KMS**
3rd week of OCT	1	**UNIT IV - Record Storage and Primary File Organization:** Secondary Storage Devices. Buffering of Blocks. Placing file Records on Disk. Operations on Files,	**KMS**
	2	File of unordered Records (Heap files), Files of Ordered Records (Sorted files),	**KMS**
	3	Hashing Techniques, and Other Primary file Organization.	**KMS**
	4	**UNIT VIII - PL / SQL:** Introduction to simple programming	**KMS**
4th week of OCT	1	Exceptions	**KMS**
	2	Cursor Management	**KMS**
	3	Cursor Management	**KMS**
	4	Database Triggers	**KMS**

1st week of NOV	1	Functions, Procedures	**KMS**
	2	Procedures	**KMS**
	3	Packages.	**KMS**
	4	Discussion on Important questions	**KMS**
2nd week of NOV	1	**UNIT IX – Transaction Processing Concepts:** Introduction, Transaction and System Concepts, Desirable properties of transaction	**KMS**
	2	Schedules and Recoverability, Serializability of Schedules,	**KMS**
	3	Serializability of Schedules	**KMS**
	4	Transaction Support in SQL	**KMS**
3rd week NOV	1	Locking Techniques for Concurrency Control,	**KMS**
	2	Concurrency Control based on time stamp ordering,	**KMS**
	3	Optimistic Concurrency control techniques	**KMS**
	4	Optimistic Concurrency control techniques	**KMS**
4th week of NOV	1	Using locks for Concurrency Control in Indexes	**KMS**
	2	Serializability of Schedules	**KMS**
	3	Transaction Support in SQL	**KMS**
	4	Locking Techniques for Concurrency Control	**KMS**
1st week of DEC 20	1	Internal Test 1	**KMS**
	2	Repetition of Unit I	**KMS**
	3	Repetition of Unit II	**KMS**
	4	Repetition of Unit III	**KMS**
2nd week DEC 20	1	Repetition of Unit IV	**KMS**
	2	Repetition of Unit V	**KMS**
	3	Repetition of Unit VI	**KMS**
	4	Repetition of Unit VII	**KMS**
3rd week of DEC 20	1	Repetition of Unit VIII	**KMS**
	2	Repetition of Unit IX	**KMS**
	3	Internal Test 2	**KMS**
	4	Solving model question paper	**KMS**
4th week of DEC 20	1	Solving model question paper	**KMS**
	2	Solving model question paper	**KMS**
	3	Solving previous question paper	**KMS**
	4	Solving previous question paper	**KMS**

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

Department of Computer Science

For the academic year 2024-25

ODD SEMESTER

Cs : Problem Solving Techniques

Academic Planner with unitization of the entire syllabus per hour

No. of Hours / week: 4 Hours

Name of the Department	Computer Science	Subject Title	Teacher
Semester	VI BSc	Subject Title: C-CS1T Problem Solving Techniques	HML
Week/Month	Day	Paper	Teacher
Aug Week1	1	**Introduction and syllabus discussion**	HML
	2	UNIT 1 – INTRODUCTION TO ALGORITHM	HML
	3	Role of algorithm, technology, Designing of algorithm	HML
	4	Growth of functions, Asymptotic notation	
Aug Week 2	1	Examples , problems solving	HML
	2	Examples , problems solving	HML
	3	Examples , problems solving	HML
	4	Examples , problems solving	
Aug Week 3	1	Standard notations common functions	HML
	2	Fundamental algorithms, exchanging the values of two variables	HML

	3	Counting, summation of set of numbers	HML
	4	Factorial computation	HML
Aug Week 4	1	Generating Fibonacci numbers	HML
	2	Reversing the digit of an integer	HML
	3	Character to number conversion	HML
	4	Revision Assignment given	
Oct Week 1	1	UNIT 2 C Programming Variables	HML
	2	Arithmetic expressions	HML
	3	Input output statements, Standard input output	HML
	4	Formatted input output	
Oct Week 2	1	Formatted input output statements	HML
	2	Control flow – Statements and blocks	HML
	3	If else, if else if, switch	HML
	4	Loops – while, do-while	
Oct Week 2	1	For, nested for	HML
	2	Break, continue, goto, labels	HML
	3	Pointers arrays, pointers and address	HML
	4	Pointers and functions	
Oct Week 3	1	Arrays, Multidimensional array	HML
	2	Initialization of pointers, command line arguments	HML

	3	UNIT III Factoring methods, finding square root of a number	HML
	4	Smallest divisor of a integer, GCD of two numbers, computing prime factors of an integer	
Oct Week 4	1	Generation of pseudo random numbwrs, raising a number to large power	HML
	2	Array order reversal	HML
	3	Array counting, finding maximum in a set	HML
	4	Removal of duplicate,	
Nov Week 1	1	Partitioning an array	HML
	2	Finding kth smallest element, multiplication of two matrices	HML
	3	UNIT – IV Merging,	HML
	4	Merging	
Nov Week 2	1	Sorting by selection	
	2	Exchange	HML
	3	Insertion	HML
	4	Diminition, partitioning	HML
Nov Week 3	1	Binary search	HML
	2	Hash search	HML
	3	Text processing, pattern searching	HML
	4	Text length	
Nov	1	Keyword searching in text	HML

Week 4	2	Text processing , keyword searching in text	HML
	3	Text line editing, linear pattern search	HML
	4	Pattern search	HML
Dec Week 1	1	Explanation of programs	HML
	2	Doubt clarification	HML
	3	Doubt clarification	HML
	4	Doubt clarification	HML
Dec Week 2	1	Question paper discussion	HML
	2	Question paper discussion	HML