



Chhattisgarh Swami Vivekanand Technical University (CSVTU), Bhilai (CG)

Scheme of Teaching and Examination

Courses of Study and Scheme of Examination of Bachelor of Vocation (B.Voc.)
in Software Development (2019-20)

Level 5 (Semester-II)

S. No.	Board of Study	Subject Code	Subject	Periods per week			Scheme of Examination (Theory/Practical)			Total Marks	Credit
				L	T	P	ESE	CT	TA		
1.	Information Technology	B103551(033)	Data Structures	4	1	-	40	5	5	50	3
2.	Information Technology	B103552(033)	Concepts of Data Mining	4	1	-	40	5	5	50	3
3.	Information Technology	B103553(033)	OOPs with Java	4	1	-	40	5	5	50	3
4.	Information Technology	B103554(033)	Multimedia Tools & Applications	4	1	-	40	5	5	50	3
Lab/Practical											
5.	Information Technology	B103561(033)	Data Structure (Lab)	-	-	3	50	-	-	50	1.5
6.	Information Technology	B103562(033)	Java (Lab)	-	-	3	50	-	-	50	1.5
On-Job-Training (OJT)/Qualification Packs											
1.	Information Technology	B103571(033)	Web Developer	-	-	-	Any one			200	15
2.	Information Technology	B103572(033)	Test Engineer	-	-	-					

L-Lecture, T-Tutorial, P-Practical, ESE-End Semester Exam, CT- Class Test, TA- Teacher's Assessment

*MES - Modular Employable Skill QP – Qualification Pack, IP – Intellectual Property, SSC–Sector Skill Councils

Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.)

Semester: B.Voc. (Level 5 Sem-II)

Subject: Data Structure

Total Theory Periods: 40 hours

Total Marks in End Semester Examination: 50

Branch: IT

Subject Code: B103551(033)

Total Tutorial Periods: 12 hours

UNIT-I

An Overview of Computers and Programming - Simple program logic, The steps involved in the program development cycle, Pseudo code statements and flowchart symbols, Using a sentinel value to end a program, Programming and user environments, The evolution of programming models.

UNIT-II

The concept of data structure, Abstract data structure, Analysis of Algorithm, The concept of List Introduction to stack & primitive operation on stack, Stack as an abstract data type, Multiple Stack, Stacks application: Infix, post fix, Prefix and Recursion, Introduction to queues, Primitive Operations on the Queues, Queue as an abstract data type, Circular queue, Dequeue, Priority queue, Applications of queue

UNIT-III

Introduction to the Linked List of Stacks, Basic operations on linked list, Stacks and queues as a circular linked list, Header nodes, Doubly Linked List, Circular Linked List, Stacks & Queues as a Circular Linked List, Application of Linked List.

UNIT-IV

TREES - Basic Terminology, Binary Trees, Tree Representations as Array & Linked List, Basic operation on Binary tree, Traversal of binary trees: - In order, Preorder & post order, Application of Binary tree, threaded binary tree, B-tree & Height balanced tree, B+ & B* trees, 2-3 trees, Binary tree representation of trees, Counting binary trees

UNIT-V

Sequential Searching, Binary search, Insertion sort, Selection sort, Quick sort, Bubble sort, Heap sort, Comparison of sorting methods

Hash Table, Collision resolution Techniques, Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs, Graph Traversal-Depth first & Breadth first search, Spanning Trees, minimum spanning Tree, Shortest path algorithm

Reference Books:

1. Data Structures, R.S. Salaria, Khanna Publishing House

Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.)

Semester: B.Voc. (Level 5 Sem-II)

Subject: Concepts of Data Mining

Total Theory Periods: 40 hours

Total Marks in End Semester Examination: 50

Branch: IT

Subject Code: B103552(033)

Total Tutorial Periods: 12 hours

Unit-I

Introduction to Data warehousing, needs for developing data Warehouse, Data warehouse systems and its Components, Design of Data Warehouse, Dimension and Measures, Data Marts:-Dependent Data Marts, Independents Data Marts & Distributed Data Marts, Conceptual Modeling of Data Warehouses: -Star Schema, Snow flake Schema, Fact Constellations, Multidimensional Data Model & Aggregates.

Unit-II

OLAP, Characteristics of OLAP System, Motivation for using OLAP, Multidimensional View and Data Cube, Data Cube Implementations, Data Cube Operations, Guidelines for OLAP Implementation, Difference between OLAP & OLTP, OLAP Servers: -ROLAP, MOLAP, HOLAP Queries.

UNIT-III

Introduction to Data Mining, Knowledge Discovery, Data Mining Functionalities, Data Mining System categorization and its Issues. Data Processing: -Data Cleaning, Data Integration and Transformation. Data Reduction, Data Mining Statistics. Guidelines for Successful Data Mining.

Unit-IV

Association Rule Mining:-Introduction, Basic, The Task and a Naïve Algorithm, Apriori Algorithms, Improving the efficiency of the Apriori Algorithm, Apriori - Tid, Direct Hasing and Pruning (DHP), Dynamic Item set Counting (DIC), Mining Frequent Patterns without Candidate Generation (FP-Growth), Performance Evaluation of Algorithms.

Unit-V

Classification:-Introduction, Decision Tree, The Tree Induction Algorithm, Split Algorithms Based on Information Theory, Split Algorithm Based on the Gini Index, Over fitting and Pruning, Decision Trees Rules, Naïve Bayes Method.

Cluster Analysis: -Introduction, Desired Features of Cluster Analysis, Types of Cluster Analysis Methods: -Partitioned Methods, Hierarchical Methods, Density-Based Methods, Dealing with Large Databases. Quality and Validity of Cluster Analysis Methods.

Reference Books:

1. Data Mining and Warehousing, Ikvinderpal Singh, Khanna Publishing House

Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.)

Semester: B.Voc. (Level 5 Sem-II)

Subject: Object Oriented Programming with JAVA

Total Theory Periods: 40 hours

Total Marks in End Semester Examination: 50

Branch: IT

Subject Code: B103553(033)

Total Tutorial Periods: 12 hours

UNIT-I

C++ vs JAVA, JAVA and Internet and WWW, JAVA support systems, JAVA environment. JAVA program structure, Tokens, Statements, JAVA virtual machine, Constant & Variables, Data Types, Declaration of Variables, Scope of Variables, Symbolic Constants, Type Casting.

Operators: Arithmetic, Relational, Logical Assignments, Increment and Decrement, Conditional, Bitwise, Special, Expressions & its evaluation.

If statement, if...else... statement, Nesting of if...else... statements, else...if Ladder, Switch, ? operators, Loops – While, Do, For, Jumps in Loops, Labelled Loops.

UNIT-II

Defining a Class, Adding Variables and Methods, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods.

Inheritance: Extending a Class, Overriding Methods, Final Variables and Methods, Final Classes, Finalize Methods, Abstract methods and Classes, Visibility Control.

UNIT-III

Arrays: One Dimensional & two Dimensional, strings, Vectors, wrapper Classes, Defining Interface Extending Interface, Implementing Interface, Accessing Interface Variable, System Packages, Using System Package, Adding a Class to a Packages, Hiding Classes.

UNIT-IV

Creating Threads, Extending the Threads Class, Stopping and Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the Runnable Interface.

UNIT-V

Local and Remote Applets Vs Applications, Writing Applets, Applets Life Cycle, Creating Executable Applet, Designing a Web Page, Applet Tag, Adding Applet to HTML File, Running the Applet, Passing Parameters to Applets, Aligning the Display, HTML Tags & Applets, Getting Input from the User.

Reference Books:

1. Object Oriented Systems with Java, Tanweer Alam, Khanna Publishing House
2. Core Java, Tanweer Alam, Khanna Publishing House

Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.)

Semester: B.Voc. (Level 5 Sem-II)

Subject: Multimedia Tools & Applications

Total Theory Periods: 40 hours

Total Marks in End Semester Examination: 50

Branch: IT

Subject Code: B103554(033)

Total Tutorial Periods: 12 hours

UNIT –I

Introduction To Multimedia, Needs and Areas of use, Identifying Multimedia Elements - Text, Images, Sound, Animation and Video, Making Simple Multimedia With PowerPoint.

TEXT - Concepts of Plain & Formatted Text, RTF & HTML Texts, Using Common Text Preparation Tools, Conversion to and from of Various Text Formats, Creating text using standard software.

UNIT-II

SOUND - Sound and its Attributes, Sound and Its Effects in Multimedia, Frequency, Sound Depth, Channels and its Effects on Quality and Storage, Size Estimation of Space of a Sound File, Sound Card Standard – FM Synthesis Cards, Waves Table Cards, MIDI and MP3 Files and Devices, 3D Sounds, Recording and editing sound using sound editors like Audacity, Sound forge etc.

UNIT-III

IMAGES - Importance of Images Graphics in Multimedia, Vector and Raster Graphics, Regular Graphics vs. Interlaced Graphics, Image Capturing Methods - Scanner, Digital Camera Etc. Color models-RGB, CYMK, Hue, Saturation, and Brightness, Various Attributes of Images Size, Color, Depth Etc, Various Image File Format BMP, DIB, CIF, PIC, and TIF Format Their Features And Limitations, Image format conversion, various effects on images. Create images using Photoshop, CorelDraw and apply various effects, Using Layers, Channels and Masks in images.

UNIT-IV

VIDEO- Basic of Video, Analog and Digital Video Type of Video, Digitization of Analog Video, Video Standard – NTSC, Pal, HDTV, Video Capturing Media /Instruments Videodisk Camcorder Compression Techniques, File Formats AVI, MJPG, MPEG, Video Editing and Movie Making Tools, converting formats of videos, recording and editing videos using video editing software like adobe premiere or Sony Vegas.

UNIT-V

ANIMATION- Concepts of animation, 2D and 3D animation, tools for creating animation, character and text animation, creating simple animation using GIF animator and flash, Morphing and Applications.

Authoring tools for Multimedia – Introduction to various types of multimedia authoring tools, CD/DVD based and web based tools, features and limitations, creating multimedia package using all components.

Reference Books:

1. Multimedia & Its Applications, V.K. Jain, Khanna Publishing House
2. Fundamentals of Multimedia, Ramesh Bangia, Khanna Publishing House

Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.)

Semester: B.Voc. (Level 5 Sem-II)

Branch: IT

Subject: Data Structure (Lab)

Subject Code: B103561(033)

Total Practical Periods: 36 hours

Total Marks in End Semester Examination: 50

List of Practicals:

1. Implement stack. Write functions like push, pop, Initialize, Empty or Full.
2. Implement concept of queues
3. Implement queues in a circular array.
4. Implement queues as a circular linked list
5. Implementing doubly linked list
6. Binary search tree to sort an array

Chhattisgarh Swami Vivekanand Technical University, Bilai (C.G.)

Semester: B.Voc. (Level 5 Sem-II)

Branch: IT

Subject: Java (Lab)

Subject Code: B103562(033)

Total Practical Periods: 36 hours

Total Marks in End Semester Examination: 50

List of Practicals

- Programming problems based on all concepts covered in theory such as Arrays, Classes, Threads, Methods, Applets etc.