|  |  |
| --- | --- |
| **Govt. College, Aharwala (Bilaspur) -Yamuna Nagar Lesson**  **Plan (2023-24) [Odd Semester]** | |
| **Name of Teacher** | **Ajay Rattan** |
| **Department** | **Computer Science** |
| **Class & Section** | **BCA 3rd Semester** |
| **Subject and Code** | **Data structure, Paper Code: BCA-232** |
| **Semester Duration** | **25 July 2023- 27 Nov 2023** |
| **Topics** | |
| **Month of July** | |
| Introduction: Elementary data organization, Data Structure definition, Data type vs. data structure, Categories of data structures, Data structure operations, Applications of data structures, Algorithms complexity and time-space tradeoff, Big-O notation. Strings: Introduction, String strings, String operations, Pattern matching algorithms. | |
| **Month Of August** | |
| Arrays: Introduction, Linear arrays, Representation of linear array in memory, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparce matrics. Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory, Traversal, Insertion, Deletion, Searching in a linked list | |
| **Month of September** | |
| , Header linked list, Circular linked list, Two-way linked list, Garbage collection, Applications of linked lists. Algorithms for Insertion, deletion in array, Single linked list Stack: Introduction, Array and linked representation of stacks, Operations on stacks, Applications of stacks: Polish notation, | |
| **Month of October** | |
| Recursion. Queues: Introduction, Array and linked representation of queues, Operations on queues, Deques, Priority Queues, Applications of queues. Tree: Introduction, Definition, Representing Binary tree in memory, traversing binary trees, Traversal algorithms using stacks and using recursion. | |
| **Month of November** | |
| Graph: Introduction, Graph theory terminology, Sequential and linked representation of graphs | |
| Note: - The teaching of topics to the students on the duration mentioned above may not be exactly followed and may have little variations/fluctuations because of some unforeseen circumstances. For example: various Functions/Activities organized by the College (Musical Meet, Blood Donation, Important Days Celebrations, Co-Curricular/Extra-curricular Activities etc.), Response of Students in the Class, Request of Students for Repetition of some specific Topics, Practical Examinations, Unpredicted Leaves, Restricted Holidays etc. | |

|  |  |
| --- | --- |
| **Govt. College, Aharwala (Bilaspur) -Yamuna Nagar Lesson**  **Plan (2023-24) [Odd Semester]** | |
| **Name of Teacher** | **Ajay Rattan** |
| **Department** | **Computer Science** |
| **Class & Section** | **B.com 3rd Semester(cav)** |
| **Subject and Code** | **Data structure, Paper Code: BC(voc)-305** |
| **Semester Duration** | **25 July 2023- 27 Nov 2023** |
| **Topics** | |
| **Month Of July** | |
| Data structure: linear and least structures: array definition, type, address calculation, stack: push/pop algorithms, applications. | |
| **Month Of August** | |
| Queue: INS/DEL algorithm, double and circular queue concept only | |
| **Month Of September** | |
| List: single linked list, algorithm and double linked list ,circular linked list concepts; B-Tree concept | |
| **Month of October** | |
| Files: serial, sequential, indexed, direct, multi-list. | |
| **Month of November** | |
| Revision | |
| Note: - The teaching of topics to the students on the duration mentioned above may not be exactly followed and may have little variations/fluctuations because of some unforeseen circumstances. For example: various Functions/Activities organized by the College (Musical Meet, Blood Donation, Important Days Celebrations, Co-Curricular/Extra-curricular Activities etc.), Response of Students in the Class, Request of Students for Repetition of some specific Topics, Practical Examinations, Unpredicted Leaves, Restricted Holidays etc. | |

|  |  |
| --- | --- |
| **Govt. College, Aharwala (Bilaspur) -Yamuna Nagar Lesson**  **Plan (2023-24) [Odd Semester]** | |
| **Name of Teacher** | **Ajay Rattan** |
| **Department** | **Computer Science** |
| **Class & Section** | **BCA 5th Semester** |
| **Subject and Code** | **Programming Using Visual Basic, Paper Code: BCA 353** |
| **Semester Duration** | **25 July 2023- 27 Nov 2023** |
| **Topics** | |
| **Month Of July** | |
| Introduction to VB: Visual & Non-Visual programming, Procedural, Object-Oriented, Object-Based and Event-Driven Programming Languages, VB as Even-Driven and Object-Based Language,  VBEnvironment: Menu bar, Toolbar, Project explorer, Toolbox, Properties Window, Form Designer, Form Layout, Immediate window, Default Controls in Tool Box Visual Development and Event Driven programming | |
| **Month of August** | |
| Basics of Programming: Variables: Declaring Variables, Types of variables, Converting Variables Types, User Defined Data Types, Forcing Variable Declaration, Scope & Lifetime of Variables. Constants: Named & Intrinsic, Operators: Arithmetic, Relational & Logical operators, Input/output in VB: Various Controls for I/O, Message box, Input Box, Print statement. | |
| **Month of September** | |
| Decision Statements in VB - if statement, if-then-else, select-case; Looping Statements in VB: do-loop, for-next, whilewend; Exit statement, Nested Control Structure; Arrays: Declaring and using Arrays, One-dimensional, Two-dimensional and Multi-dimensional Arrays, Static and Dynamic arrays, Array of Arrays.  Procedures: General & Event Procedures, Subroutines, Functions, Calling Procedures, Arguments - Passing Mechanisms, Optional Arguments, Named Arguments, Functions Returning Custom Data Types | |
| **Month of October** | |
| Simple Program Development in VB such as Sum of Numbers, Greatest among Numbers, Checking Even/Odd Number, HCF of Two Numbers, Generate Prime Numbers, Generate Fibonacci Series, Factorial of a Number, Searching, Sorting, etc. | |
| **Month of November** | |
| Revision | |
| Note: - The teaching of topics to the students on the duration mentioned above may not be exactly followed and may have little variations/fluctuations because of some unforeseen circumstances. For example: various Functions/Activities organized by the College (Musical Meet, Blood Donation, Important Days Celebrations, Co-Curricular/Extra-curricular Activities etc.), Response of Students in the Class, Request of Students for Repetition of some specific Topics, Practical Examinations, Unpredicted Leaves, Restricted Holidays etc. | |

|  |  |
| --- | --- |
| **Govt. College, Aharwala (Bilaspur) -Yamuna Nagar Lesson**  **Plan (2023-24) [Odd Semester]** | |
| **Name of Teacher** | **Ajay Rattan** |
| **Department** | **Computer Science** |
| **Class & Section** | **B.A 5th Semester/B.Sc 5th Sem** |
| **Subject and Code** | **Paper-I: Fundamentals of Database Systems** |
| **Semester Duration** | **25 July 2023- 27 Nov 2023** |
| **Topics** | |
| **Month Of July** | |
| c Concepts – Data, Information, Records and files. Traditional file Based ApproachLimitations of Traditional File Based Approach, Database Approach-Characteristics of Database Approach, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions and Components, Advantages and Disadvantages of DBMS. | |
| **Month of August** | |
| Actors on the Scene - Data and Database Administrator, Database Designers, End users Applications Developers and Workers behind the Scene. Database System Architecture – Three Levels of Architecture, Schemas – External, Conceptual and Internal Level, Database Languages – VDL, DDL, SDL, DML, SQL, Mappings – External/ Conceptual and Conceptual/Internal, Instances, Data Independence – Logical and Physical Data Independence | |
| **Month of September** | |
| Data Models: High Level, Low Level and Representational – Records- based Data Models, Object-based Data Models, Physical Data Models and Conceptual Models Entity-Relationship Model – Concepts, Entity Types, Entity Sets, Attributes, Relationships, Constraints, Keys , Degree, Cardinality etc. ER Diagrams of any Database Organization- Inventory System, Payroll System, Reservation System, Online Book Store etc. | |
| **Month of October** | |
| Classification of Database Management System, Centralized and Client Server architecture Relational Data Model:-Brief History, Terminology in Relational Data Structure, Relations, Properties of Relations, Keys – Primary, Secondary, Composite, Candidate, Alternate and Foreign Key, Domains, Integrity Constraints over Relations. | |
| **Month of November** | |
| Revision | |
| Note: - The teaching of topics to the students on the duration mentioned above may not be exactly followed and may have little variations/fluctuations because of some unforeseen circumstances. For example: various Functions/Activities organized by the College (Musical Meet, Blood Donation, Important Days Celebrations, Co-Curricular/Extra-curricular Activities etc.), Response of Students in the Class, Request of Students for Repetition of some specific Topics, Practical Examinations, Unpredicted Leaves, Restricted Holidays etc. | |

|  |  |
| --- | --- |
| **Govt. College, Aharwala (Bilaspur) -Yamuna Nagar Lesson**  **Plan (2023-24) [Odd Semester]** | |
| **Name of Teacher** | **Ajay Rattan** |
| **Department** | **Computer Science** |
| **Class & Section** | **B.A 5th Semester/B.Sc 5th Sem** |
| **Subject and Code** | **Paper-II: Fundamentals of Database Systems** |
| **Semester Duration** | **25 July 2023- 27 Nov 2023** |
| **Topics** | |
| **Month Of July** | |
| Introduction to Internet and World Wide Web; Evolution and History of World Wide Web; Basic Features; Web Browsers; Web Servers; Hypertext Transfer Protocol; URLs; Searching and WebCasting Techniques; Search Engines and Search Tools | |
| **Month of August** | |
| Steps for Developing Website; Choosing the Contents; Home Page; Domain Names; Internet Service Provider; Planning and Designing Web Site; Creating a Website; Web Publishing: Hosting Site; | |
| **Month of September** | |
| Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML Tags; Header, Title, Body, Paragraph, Ordered/Unordered Line, Creating Links; Headers; Text Styles; Text Structuring; Text Colors and Background; Formatting Text; Page layouts; Insertion of Text, Movement of Text | |
| **Month of October** | |
| Images: Types of Images, Insertion of Image, Movement of Image, Ordered and Unordered lists; Inserting Graphics; Table Handling Functions like Columns, Rows, Width, Colours; Frame Creation and Layouts; Working with Forms and Menus; Working with Buttons like Radio, Check Box; | |
| **Month of November** | |
| Revision | |
| Note: - The teaching of topics to the students on the duration mentioned above may not be exactly followed and may have little variations/fluctuations because of some unforeseen circumstances. For example: various Functions/Activities organized by the College (Musical Meet, Blood Donation, Important Days Celebrations, Co-Curricular/Extra-curricular Activities etc.), Response of Students in the Class, Request of Students for Repetition of some specific Topics, Practical Examinations, Unpredicted Leaves, Restricted Holidays etc. | |