

Amrut Sevabhavi Sanstha, Parbhani.  
**Late Ku. Durga K. Banmeru Science College, Lonar Dist-Buldhana.**  
**Department of computer**  
**science**  
**Teaching Plan 2022-23**

**Class:-B.Sc. I<sup>st</sup>Year**  
**Semester:- I<sup>st</sup>**  
**Paper:- I- computer application(CBCS)**

Sr.No	Month	Unit	Name of Unit & Topics	Required Lect.	Total Lect.
1	Aug	<b>Unit. I</b>	Introduction to Computer, Characteristics, Generations of Computers, Block diagram of Computer. <b>Memories:</b> Primary Memories : RAM, ROM, and its types, Cache Memory, Secondary Storage Devices : Hard Disk, SSD, Pen drives. <b>I/O Devices:</b> Keyboard, Mouse, Scanner, Touch Screen, Monitors: LCD & LED. Printers: Impact and non-impact.	04 02 04 02 03	15
2	Aug-Sept	<b>Unit II</b>	<b>Operating System:</b> Definition, Functions of Operating System, Types: Batch Mode, Multiprogramming, Time sharing , Online Real Time, Distributed O.S. Booting process. <b>Windows:</b> Introduction, Features and taskbars, Desktop, Customizing Desktop	04 04 03 04	15
3	Sept	<b>Unit III</b>	Programming Concept: Algorithm, flowcharting, Types of programming languages, Programming process: Program design, Coding, Compilation & Execution, Testing & Debugging, Documentation. Structured Programming : History of C language, Advantages, Structure of C program, Character set, Identifiers, Keywords, Constants and Variables, Symbolic constants, Qualifiers, Type conversion. Operators and Expressions	04 02 04 02 03	15
4	Oct	<b>Unit IV</b>	<b>I/O Operations :</b> Formatted I/O : scanf(), printf() <b>Unformatted I/O :</b> getch(), getchar(), gets(), putchar(), puts(). <b>Control structures:</b> Branching: if, if-else, Conditional operator(? : ), nested if, switch. Looping: while, do-while, for statements, comma operator, goto, break, continue, nested loops.	04 02 04 02 03	15
5	Nov.	<b>Unit V</b>	<b>Arrays</b> - Declaration and initialization of one and two dimensional array. <b>Structure</b> - Definition, declaration, initialization, array of structure, nested structure, union. <b>Pointers</b> - Declaration, initialization, pointers arithmetic	04 04 03 04	15
6	dec	<b>Unit IV</b>	<b>Functions in C:</b> Introduction, definition of function, function prototype, categories of function, actual argument, formal argument, function calling: call by value, call by reference, function parameters, local and global variable, functions with array, function recursion. <b>String functions</b> - String functions : strlen(), strcpy(), strcmp() & strcat()	04 04 03 04	15

**Class:-B.Sc. I<sup>st</sup>Year**

**Semester:- II<sup>nd</sup>**

**Paper:-computer application (CBCS)**

Sr. No	Month	Unit	Name of Unit & Topics	Required Lect.	Total Lect.
1	Jan- Feb	<b>Unit. I</b>	<b>Data structure:</b> Introduction to data structure, Types of data structure: Primitive and Non-primitive, Linear and Non-linear data structure, Data structure operations. <b>Array:</b> Definition and concepts, Memory Representations, Operations: Traversing, Insertion, Deletion. <b>Stacks:</b> Definition and concepts, Memory Representations, Operations: Traversing, Insertion, Deletion.	04 02 04 02 03	15
2	Feb- Mar	<b>Unit II</b>	<b>Queue:</b> Definition and concepts, Memory Representations, Operations: Traversing, Insertion, Deletion. Types of Queue. <b>Linked List:</b> Definition and concepts, Memory Representations, Types of Linked List, and Operations: Traversing, Insertion, Deletion. <b>Tree:</b> Definition and Terminologies, Memory Representations of Trees, Types of Trees : Binary Trees, Complete Binary Trees, Binary Search Trees, Traversing : Preorder, Inorder, Postorder, Insertion, Deletion.	04 03 03 02 03	15
3	Mar	<b>Unit III</b>	<b>Searching and Sorting:</b> Definition and concept. <b>Searching Techniques:</b> Linear Search, Binary Search and Indexed Sequential Search. <b>Sorting Techniques:</b> Bubble Sort, Selection Sort, Insertion Sort, Radix Sort, Merge Sort and Quick Sort.	03 04 03 03 02	15
4	Mar- Apr	<b>Unit IV</b>	<b>Object Oriented Programming:</b> Features, Advantages and Applications of OOPS. Comparisons between POP and OOP, Introduction to C++, Program structure in C++. <b>Classes and Objects:</b> Classes and Objects Specifiers, Defining data member and member functions, Accessing members. <b>Managing Console I/O:</b> Formatted and Unformatted, Usage of manipulators: endl & setw, Scope Resolution Operator.	04 03 03 03 02	15
5	Apr- May	<b>Unit V</b>	<b>Functions in C++:</b> Passing objects to and returning objects from functions. Function Overloading and Default argument, Inline function, Friend function. Array of Objects, Pointer to objects, 'this' pointer. Constructor and Destructor: Types of constructor, Usage of Constructor.	04 03 03 02 03	15
			<b>Operator Overloading:</b> Definition, Overloading Unary and Binary operators. <b>Inheritance:</b> Definition, Types of Inheritance, Visibility mode; Types of inheritance with example, Virtual base classes and Abstract base classes.	04 03 03 03 02	15

Amrut Sevabhavi Sanstha, Parbhani.

**Late Ku. Durga K. Banmeru Science College, Lonar Dist-Buldhana.**

**Department of COMPUTER**

**SCIENCE**

**Teaching Plan 2022-23 Class:-B.Sc.**

**II<sup>nd</sup> Year**

**Semester:- III**

**Paper- Information Technology Data Structure and C++**

Sr. No	Month	Unit	Name of Unit & Topics	Required Lect.	Total Lect.
1	Aug	Unit. I	<p><b>Data structure:</b> Introduction to data structure, types of data structure: primitive and non primitive, linear and non linear data structure, data structure operations.</p> <p>Linear arrays: Definition and concepts, representations, operations on arrays: traversing, inserting, deleting. Stacks: Definition and concepts, representations, operations on stacks: Push , Pop.</p>	03 04 03 03 02	15
2	Aug-Sept	Unit II	<p><b>Queues:</b> Definition and concepts, representations, operations: Insert and delete; concept of circular queue, dequeue, priority queue. <b>Linked List:</b> Introduction, implementation of linked list, types of linked list: single, circular and doubly linked list. Operations on linked list: Insert, Delete, Search.</p>	04 02 03 02 02 02	15
3	Sept	Unit III	<p><b>Trees:</b> Definition and concept, binary tree, traversing operations: in order, pre-order, post-order</p> <p><b>Sorting and Searching:</b> Definition and concept, <b>sorting techniques:</b> bubble, selection, insertion, merge and quick sort. <b>Searching techniques:</b> Sequential and binary searching.</p>	03 04 03 02 03	15
4	Oct	Unit IV	<p><b>Object Oriented Programming:</b> features, advantages and applications of oops. Introduction to C++, Program structure in C++. <b>Classes and Objects:</b> classes and objects specifiers, defining data member and member functions; accessing members. <b>Managing console I/O :</b> Formatted and Unformatted, Usage of manipulators, memory allocation operators: new and delete, scope resolution operator.</p>	04 04 04 03	15

5	Nov.	<b>Unit V</b>	<b>Functions in C++:</b> Passing objects to and returning objects from functions. Function overloading and default argument, Inline function, Friend function. Array of Objects, Pointer to objects, 'this' pointer. Constructor and Destructor: Types of constructor, Usage of Constructor.	04 03 03 03 02	15
6	DEC		<b>Unit VI : Operator Overloading :</b> Definition, Overloading unary and binary operators. <b>Inheritance:</b> Definition, Visibility mode; Types of inheritance with example, virtual base classes and abstract base classes.	03 04 03 02 03	15

**Class:-B.Sc. II<sup>nd</sup> Year**  
**Semester- IV<sup>th</sup>**  
**Paper:- RDBMS and PL/SQL**

Sr.No	Month	Unit	Name of Unit & Topics	Required Lect.	Total Lect.
1	Jan- Feb	<b>Unit I</b>	<b>Fundamental of DBMS</b> : Traditional file approach and comparison with DBMS Architecture of a database system, Data base approaches, storage structures, data representation, data independence, database models: Relational, Hierarchical, network, Relational Algebra, Object Based model, data dictionary and Database Administration.	03 04 03 02 03	15
2	Feb- Mar	<b>Unit II</b>	<b>Relational Model</b> : Relations, Domains and Attributes, keys, E-R diagrams, Reducing E-R diagrams to tables, function dependency, Entity, Relationship, Mapping Constraints, Normalization: 1NF, 2NF, 3NF, 4NF, BCNF.	04 03 02 03 03	15
3	Mar	<b>Unit III</b>	<b>Introduction to SQL</b> : Components of SQL, data types, operators, <b>DDL Commands</b> : CREATE, ALTER, DROP, RENAME for tables. Data Integrity and types of integrity constraints. <b>DML Commands</b> : SELECT, INSERT, DELETE & UPDATE; <b>Clauses</b> : ORDER By, GROUP By and Having clause.	04 03 04 02 02	15
4	Mar- Apr	<b>Unit IV</b>	<b>Functions</b> : Number Functions: AVG, MAX, MIN, SUM, COUNT, TO-NUMBER, GREATEST, LEAST, ABS, MOD, FLOOR, CEIL, TRUNC, SQRT, SIGN, SIN, COS, LOG, EXP. Character Function : INITCAP, LOWER, UPPER, INSTR, LENGTH, LTRIM, RTRIM, LPAD, RPAD, SOUNDEX, Conversion Functions: TO_Number, TO_Character, DECODE. Date functions: ADD_Months, Last_Day, Months_Between, Next_Day, Sys_Date, New_Time. Joins : Self join, equijoin and outer join.	04 03 03 03 02	15
5	Apr- May	<b>Unit V</b>	<b>PL/SQL</b> : Features and block structure, variables and constant, data types, control structure. Cursor: Concepts of cursor, types, declaring, opening, using cursors, fetching data, closing a cursor, cursor attributes. Trigger: create, Types, Creating Before and After Trigger,	04 03 03 02 03	15

**Class:-B.Sc. II<sup>nd</sup> Year**

**Semester- IV<sup>th</sup>**

6	MA Y		<b>Transaction:</b> Rollback, commit and save point, rollback segment. Create Procedure and create function. Securities of Database: Users, creating users, roles, creating roles, types of privileges, GRANT, REVOKE command, Table and Row Locking.	04 03 03 02 03	15
---	---------	--	---	----------------------------	----

Amrut Sevabhavi Sanstha, Parbhani.  
**Late Ku. Durga K. Banmeru Science College, Lonar Dist-Buldhana.**

Department of  
**COMPUTER SCIENCE**

**Teaching Plan 2022-23**

**Class:-B.Sc. III<sup>rd</sup> Year**

**Semester-V<sup>th</sup>**

**Paper:- . Net Technology and Java Programming**

Sr. No	Month	Unit	Name of Unit & Topics	Required Lect.	Total Lect.
1	Aug	<b>Unit. I</b>	<b>Introduction to .NET Framework :</b> NET framework, MSIL, CLR, CLS, CTS, Namespaces, Assemblies The Common Language Implementation, Assemblies, Garbage Collection, The End to DLL Hell - Managed Execution	04 03 03 03 02	15
2	Aug-Sept	<b>Unit II</b>	<b>Introduction to visual programming :</b> Concept of event driven programming - Introduction to VB.Net environment, The .NET Framework and the Common Language Runtime. Building VB.NET Applications, The Visual Basic Integrated Development - Basic Language - Console application and windows application, Data types, Declaring Variables, scope of variables, operators and statements.	04 03 02 04 02	15
3	Sept	<b>Unit III</b>	<b>Decisions and loop :</b> Making Decisions with If . . . Else Statements, Using Select Case, Making Selections with Switch and Choose, Loop statements - Do Loop, for, while - The With Statement - Handling Dates and Times - Converting between Data Types - Arrays - declaration and manipulation - Strings & string functions - Sub Procedures and Functions.	04 03 03 02 03	15
4	Oct	<b>Unit IV</b>	<b>Introduction to AVA :</b> History and evolution ,Feature, JDK, JVM, Difference between C++ and Java, Structure of Java Program, Keywords, Variable, Data types and Literals, Operators Control of Flow, (Selection Statements, Iteration Statements),Command Line Argument, One dimensional and two dimensional array.	04 03 02 02 02 03	15

5	Nov.	<b>Unit V</b>	<p><b>Classes and inheritance:</b> Class, Object, Method, Overloading Method, Constructor, Constructor Overloading, this Keyword, Inheritance: Introduction to Inheritance, Super, Multilevel Hierarchy, method overriding, Abstract class, Using Final (variables , methods and classes).</p>	04 03 03  02 03	15
6	DEC	<b>UNIT VI</b>	<p><b>String, Package and Interface:</b> <b>String:</b> String operation, String comparison, Searching and modifying string, <b>Package:</b> Package concept, Defining Package, Finding Package, Java In-built Packages <b>Interface:</b> Interface concept, Defining, and Implementing of Interface.</p>	04 03 03 02 03	15



**Class:-B.Sc. III<sup>rd</sup> Year**

**Semester-VI<sup>th</sup>**

**Paper name**

**Advanced Java and**

**VB.net**

<b>Sr. No.</b>	<b>Month</b>	<b>Unit</b>	<b>Name of Unit &amp; Topics</b>	<b>Required Lect.</b>	<b>Total Lect.</b>
1	Jan- Feb	<b>Unit. I</b>	<b>Exception Handling and Multithreading</b> : Exception Handling: Concept of Exception handling, Type of Exception, Try, Catch, and Finally. Multiple Catch blocks, Nested Try Statements, throw, throws. Multithreading: Multithreading concept, life cycle, creating and running thread, thread priority.	04 03 03 02 03	15
2	Feb- Mar	<b>Unit II</b>	<b>Applet</b> : Introduction to Applet, Applet life cycle, HTML applet tag with all attributes, Running the applet, Passing parameters to applets, Displaying using applet viewer, getDocumentBase() and getCodeBase() methods, Applet context, Applet vs Application, Graphics introduction, Graphic class, draw lines, circle, rectangle, ellipse.	04 03 03 02 03	15
3	Mar	<b>Unit III</b>	<b>Event Handling and AWT</b> : Introduction, Event delegation model, Java AWT event description, sources of event, Event listener interfaces, Adapter classes, Inner classes. AWT (Abstract Window Toolkit): Introduction, AWT Controls Label, Button, Checkboxes, Lists, ScrollBar, TextField, TextArea, Layout manager.	04 04 04	15
4	Mar- Apr	<b>Unit IV</b>	<b>Windows Applications</b> : Forms: Adding Controls to Forms, Handling Events, MsgBox, InputBox , Working with Multiple Forms, Setting the Startup Form, SDI & MDI Forms, Handling Mouse & Keyboard Events, Common controls: Text Boxes, Rich Text Boxes, Labels, Buttons, Checkboxes, Radio Buttons, Group Boxes, List Boxes, Checked List Boxes, Combo Boxes, Picture Boxes, Scroll Bars, Tool Tips, Timers, properties – methods	03 03 02 02 02	15
5	Apr- May	<b>Unit V</b>	<b>Object Oriented Programming: Classes and Objects</b> : Class definition, Creating objects, Defining Member functions, Methods and Events, Attaching a class with form, Delegates. <b>Exceptions Handling</b> : Exception classes in .net framework, Structured and Unstructured exceptions, tracing errors, breakpoints, watch, Quick watch.	04 04 02 02 03	15

**Class:-B.Sc. III<sup>rd</sup> Year**

6	MAY	<b>UNIT VI</b>	<b>Data Access with ADO.Net</b> , accessing data with Server Explorer, Accessing Data with data Adaptors and Data sets, Creating a new data connection, creating and populating Data set, displaying data in Data Grid, selecting a data provider, Data accessing using Data adapter Control, Binding Data to Controls.	04 04 02 02 03	15
---	-----	----------------	---	----------------------------	----

**Class:-B.Sc. III<sup>rd</sup> Year**