Tentative Syllabus for Computer Teacher 2nd Grade

Computer Basic, Fundamentals and Architecture

History and Evaluation
Computer Characteristics
Computer Classification
Computer Organization
Input Devices
Output Devices
Processors and Its Types
Computer Memory
Ports and Connectors
Computer Registers and Buses
Secondary Storage Devices
Data Processing
File and Its Types
File and Its Types

Digital Electronics

Digital and Analog Signals
Logic Gates
Number System
Combinational Logic Designs
Complements
Sequential Logic Designs
Computer Arithmetic
Machine Instruction Set
Addressing Modes
Instruction Cycle and Pipelining

MS Windows Operations and MS Office

Booting Sequence
Windows Installation
Computer GUI
Desktop and Icons
File, Folder and Directories
Common Utilities
Word Processing
MS Word
MS Excel
MS Powerpoint
MS Access
MS Outlook

Operating System

Introduction to O.S
Types of OS
Functions of OS
Process & Threads
System calls
Interprocess communication
Multithreading
C.P.U. Scheduling
Process scheduling
Process synchronization
Deadlock
Memory Management
Swapping
Paging
Segmentation
Demand Paging
Thrashing
File management
File access method
Partitions and Mapping
File Allocation Method
Disk Management
Disk Scheduling
RAID Technology
Buffering and Tunning
System Protection & Access Control
System Security
System and Network Threats
Cryptography
Linux OS

Computer Networking & Communication

Introduction
Transmission Mode
Network Devices
Transmission media
Guided Media
Unguided media
Computer network Types
Topologies
OSI Model
TCP/IP Protocol
Error Detection
Error Correction
Multiplexing
Switching
Routing
Network Addressing
IPV4 / IPV6

Application Protocols
Network Security
Clint Server Model

Data Structure and Programming Fundamentals

Problem Solving Approach
Programming Paradigms
Modularity and Code Re-usability
Algorithms
Flowcharts
Asymptotic Notation
Time and Space Complexity
Stack
Queue
Link Lists
Tree Data Structure
Tree Traversal
B Tree
B+ Tree
AVL Tree
Graph Data Structure
Spanning Tree
DFS Algorithm
BFS Algorithm
Linear Search Algorithm
Binary Search Algorithm
Sorting Algorithms
Greedy Algorithms
Dynamic Programming
Recursion Algorithm and Tower of Hanoi

C Programming Language

C : Histroy & Introduction
Operator Precedence
Characteristics of C
C Program Structure & Syntax
Comments in C
Input/Output in C
Compilation Process in C
Tokens in C
Keywords and Identifiers
Data Types in C
Literals in C
Format Specifiers in C
Escape Sequence in C
Operators in C
Type Casting in C

Decision Making Statements in C
Looping in C
Strings in C
Arrays in C
Functions in C
Storage Class in C
Recursion in C
Pointers in C
Structure
Union
File Handling in C
Compile Time vs Runtime
Memory Allocation in C
C Preprocessor Directives

OOPs and C++ Programming

History & Introduction
Features of OOPs
Basic Structure & Syntax
C++ Basic Input/Output
C++ Data Types
C++ Operators
Object and Class
Inheritance
Class Access Modifiers
Storage Classes & Type Qualifiers
Friend Function
Constructor
Destructor
This Pointer
Static Members
Polymorphism
Function Overloading
Operator Overloading
Function Overriding
Abstraction & Abstract Classes
Virtual Function
Files and Streams
Exception Handling
Dynamic Memory Allocation

Java Programming

Java History & Interoduction
Features of Java
C++ vs Java
Java Syntax and Program Structure
JDK, JRE and JVM
Java Keywords
Data Types in Java
Operators in Java

Super and Final Keywords
Method in Java
Java Polymorphism
Java Interface
Java Access Modifiers
Java Packages
Exception Handling in Java
Multithreading in Java
Java Applet

Visual Basic (VB) Programming

Introduction to Visual Basic
Visual Basic IDE
Modular Programming
Event Driven Programming
Visual Basic Controls
Data Types
Variables
If() and IIf()
Functions
Event Procedure and Sub Procedure
Toolbox
Dialogue Boxes
Runtime Enabling and Disabling
OLE
ADO Control
DataGrid Control
ActiveX Controls
ActiveX DLL and EXE
IIS Application

Database Management System

Introduction to DBMS
Data Models
Data Schemas
Entity Relationship Model
Relational Data Model
Relational Algebra
Functional Dependency
Normalization
Storage system & RAID
File Structure
Indexing
Hashing
SQL Introduction
Integrity Constraints
Types of keys
SQL Data Type
DDL, DML, DCL
SQL Views

SQL Clauses
SQL Aggregate Functions
SQL Joins
Transactions and ACID
Concurrency Control
Deadlock
Data Backup
Data Recovery

Web Technology and Multimedia

Introduction to HTML
Tag and Attributes
Tax Style & Text Arrangements
Color & Background
Lists & Types
Image Tag
Hypertext, Hyperlinks & HyperMedia
URL & URI
Tables
Forms
Farmes
DHTML
CSS
Javascript
DOM
FTP, HTTP, HTTPS and SSL
Elements of Web
Web Browsers and It's Type

Software Engineering and Data Mining
Cyber Security & Emerging Technology