Teacher’s Name :- School :-

Year :- 2022 Subject :- Information & Communication Technology

Grade :- 10

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| Competency | Competency Level | Content | Learning Outcomes | No. of Periods | Quality Inputs | Expected Date | Taught Date | Others |
| 1 . Investigates the place of the computer in the world of information. | 1.1 Investigates the contribution of ICT towards national development. | * Definition of ICT * Application of ICT in the society * e-government, agriculture, education, health, industry, entertainment | * Explains the nature of ICT * Elaborates the uses of ICT in various fields of work | 3 |  |  |  |  |
| 1.2 Investigates the computer as a system for converting data into information. | * Components of a system * Difference between data and information * Data as input and information as output * Processing as the method for converting data into information . | * Describes various systems in day to day life * Elaborates functions of an information system in terms of its main components. | 2 |  |  |  |  |
| 1.3 Explores the evolution of computers to identify its major developments | * Computer generations * Evolution of processor technology * Vacuum tubes * Transistors * Integrated circuits: LSIC,VLIC * Improvements in system characteristics * Size * Capacity * Speed * Accuracy * Efficiency | * Explains landmarks in the evolution of computers * Discusses the enhancement in system characteristics with the evolution. | 2 |  |  |  |  |
| 2. Selects and uses computer hardware. | 2.1 Classifies computers using a variety of methods. | * Computer classifications * Main frame, Mini, Micro, Super * Digital, analog and hybrid | * Briefly explains the features of different classes of computers | 2 |  |  |  |  |
| 2.2 Explores computer systems by function. | * Functions of a computer and its peripherals * Input * Processing * Output * Storage * Communication | * Identifies components of a computer system * Describes functions of each components | 3 |  |  |  |  |
| 2.3 Identifies and connects basic peripherals to the computer. | * Basic computer components: keyboard, mouse, system unit and monitor * Ports * PS/2 port * Serial port * Parallel port * USB port * RJ 45 * Video port | * Describes main physical components of a computer      * Describes functions of ports of a computer | 2 |  |  |  |  |
| 2.4 Uses the basic block diagram to demonstrate the computer system | * ALU and Control Unit * Flow path * Data and instruction signals * Control signals | * Explains the functions of basic components. * Explains the flow of signals in the computer system. | 1 |  |  |  |  |
| 2.5 Investigates benefits and concerns of computer networks for optimal communication | * Purpose of computer networks * Data communication * Resource sharing * Components of a network * Network Interface Card * Internal and external devices * Transmission media: guided and unguided * Network cables: twisted pair, co-axial, fiber optics * Modem, hub, switch, router * Network operating system * Types of computer networks * LAN * MAN * WAN * Advantages and disadvantages of networks | * Explains the purpose of networking * Describes physical layout of a network * Discusses the issues in networking. | 3 |  |  |  |  |
| 3. Investigates the methods used to represent data in computer systems. | 3.1. Uses the binary number system to represent data in computer systems. | * Methods of data representations * 1 and 0 to represent two states * Binary number system | * Explains that data can be represented using two states * Represents positive decimal integers in binary | 2 |  |  |  |  |
|  | 3.2. Converts decimal numbers to Binary, Octal and Hexa Decimal | * Number systems:   Decimal, Binary, Octal, Hexa Decimal   * Methods for number systems conversions | * Describes number systems with 8 and 16 as the bases * Computes position values of the numbers converted in each system. | 2 |  |  |  |  |
|  | 3.3. Converts Binary numbers to Decimal, Octal and Hexa Decimal numbers and vice versa | * Methods for conversions (positive integers only) * Binary to Decimal * Binary to Octal * Binary to Hexa Decimal | * Converts binary integers to decimals and vice versa * Converts binary integers to octals and vice versa * Converts binary integers to hexa decimal and vice versa * Converts octal integers to hexa decimal and vice versa | 3 |  |  |  |  |
|  | 3.4. Determines the capacity of data storage | * Units of measurement:   Bit, Byte, Kilo Byte, Mega Byte, Giga Byte, Tera Byte   * Order of capacities of different storage devices: Cache, RAM, ROM, hard disk, compact disk, USB drives | * Describes storage units in terms of bytes * Compares capacity of various storage devices | 2 |  |  |  |  |
|  | 3.5. Explores coding systems in computers | * BCD * EBCDIC * ASCII * Unicode | * Explains how different coding systems are used * Explains limitations of each system | 1 |  |  |  |  |
| 4. Uses Boolean logic to work effectively with logic gates | 4.1. Identifies basic logic operators and draws truth tables to illustrate their functions | * Operators: AND, OR, NOR, NAND,NOT * Introduction to Truth Tables (maximum of three inputs) | * Explains the action of logic gates * Draws truth tables for logic operations | 2 |  |  |  |  |
|  | 4.2. Applies concepts of Boolean logic to find solutions to simple day-to-day life problems. | * Design of logic for simple real world applications. * Alarm systems * Selection criteria | * Draws block diagrams of systems using Boolean logic * Draws block diagrams to represent solutions to simple problems involving Boolean logic * Converts block diagrams into logic diagrams | 2 |  |  |  |  |
| 5. Works effectively with Operating Systems | 5.1. Explores operating systems by type, functions, benefits and concerns. | * Introduction to OS * Evolution of computer/human interface * Types of operating systems: single user, multi user, multi tasking, real time, distributed * Functions of the OS: user interface and resource management * Benefits of the OS * Utilities of an OS: Partitioning, * Formatting, Defragmentation | * Describes the need of an operating system * Explains functions of an operating system * Explains utilities of an operating system | 2 |  |  |  |  |
| 5.2. Handles files and folders in Operating Systems | * Introduction to the files system * Drives * Folders * Files and file extensions * File and folder operations | * Carries out following operations: creation, deletion, renaming, copying * Organizes documents into folders according to needs | 4 |  |  |  |  |
| 6. Uses Wordprocessing Software to Solve Day-to-day problems | 6.1. Explores the concept and features of wordprocessing | * Functions of wordprocessing software * GUI of wordprocessing software | * Functions of wordprocessing software * GUI of wordprocessing software | 4 |  |  |  |  |
| 6.2. Performs basic tasks in wordprocessing software | * Creating new documents * Opening existing documents * Saving and closing of documents | * Creates new documents * Opens existing documents * Saves and closes documents | 3 |  |  |  |  |
| 6.3. Uses different types of formatting in word processing | * Formatting text * Graphics: Insertion and formatting * Shapes : Insertion and formatting | * Applies suitable text formatting * Manipulates graphics and draws simple shapes | 3 |  |  |  |  |
|  | 6.4. Manipulates table feature in wordprocessing software | * Insertion of tables * Column width and height * Deletion, insertion, splitting and merging of cells | * Creates tables to insert data * Formats tables * Edits tables | 2 |  |  |  |  |
| 6.5. Creates and prints documents | * Spelling and grammar checking * Find and replace of text * Page setup: paper size, margins, orientation and selection of printers * Print options: copies and page range. | * Checks spelling and grammar of a document * Prints documents with necessary settings | 2 |  |  |  |  |
| 6.6. Uses the Mail Merge facility | * Document types * Common document * Source data | * Creates template document * Creates data tables * Merges data with template | 3 |  |  |  |  |
| 7. Uses Spreadsheet to solve simple statistical problems | 7.1. Explores a Spreadsheet to identify its basic features and functions. | * Introduction spreadsheets * GUI of spreadsheet software | * Lists functions of an electronic spreadsheet * Identifies features of GUI of spreadsheet software | 2 |  |  |  |  |
| 7.2. Moves around the worksheet to gain hands on experience of data entry | * Worksheet, columns, rows and cells * Moving around worksheet. * Data entry (label, number, formulae) | * Identifies components of a worksheet * Enters and edits data | 2 |  |  |  |  |
| 7.3. Performs basic mathematical operations | * Simple calculations using values and operators (+, -, \*, /,^) * Simple calculations using cell addresses and operators (+, -, \*, /,^) | * Carries out calculations using basic operators * Uses cell references in calculations. | 2 |  |  |  |  |
| 7.4. Uses inbuilt functions for calculations | * SUM, AVERAGE, MAX, MIN, COUNT | * Identifies functions and its parameters * Uses basic built-in functions in calculations | 2 |  |  |  |  |
| 7.5. Formats a worksheet | * Font, Font size, Boldface, Italic etc. * Alignment (centre, left, right, justify) * Decimal places (increase and decrease) | * Formats and aligns data in cells * Sets decimal places according to requirements | 2 |  |  |  |  |
|  | 7.6. Uses relative versus absolute cell references appropriately. | * Absolute and Relative cell references | * Explains relative and absolute addressing modes * Uses both modes appropriately in calculations | 2 |  |  |  |  |
| 7.7. Creates charts using Spreadsheet to explain data | * Charts: chart type, chart options * Chart types: Bar, column, line and pie | * Identifies the relevant chart type * Present data using suitable built in chart types | 2 |  |  |  |  |
| 8. Uses Presentation software to develop electronic presentations | 8.1. Produces effective presentations integrating multimedia | * Introduction to presentation software * Changing Background, Slide layout, Slide designs. * Inserting text and multi media | * Applies good practices in the use of presentation software * Formats slide layout * Inserts text, images, movies and sounds | 3 |  |  |  |  |
| 8.2. Applies suitable animations to enhance the quality of presentations. | * Slide transitions * Custom animation | * Applies suitable screen transitions * Applies suitable animations on screen objects | 3 |  |  |  |  |
| 9. Develops simple databases to elicit information. | 9.1. Explores the Concept of Database | * Introduction to databases * Definition of a database * Advantages of databases. * Features of databases: Absence of redundancy, Efficiency, Accuracy, Consistency, Security, Validity, Simplicity, integrity * Manual and electronic databases: * comparison and contrast * Introduction to Relational Databases: Tables, records, fields, key fields | * Discusses nature and advantages of databases * Explains the features of relational databases * comparison and contrast * Introduction to Relational Databases: Tables, records, fields, key fields | 3 |  |  |  |  |
| 9.2. Creates a simple database with a single table, manually. | * Field name, unique field, data types, field size | * Identifies the purpose of the database * Select suitable fields to create data tables | 2 |  |  |  |  |
| 9.3. Converts a manual database into electronic media. | * Field name, unique field, data types, field size | * Identifies the purpose of the database * Select suitable fields to create data tables | 2 |  |  |  |  |
|  | 9.4. Design a simple relational database. | * Tables, fields and key fields: Primary key, foreign key, relationships | * Designs simple relational databases manually *  Identifies primary and foreign keys | 2 |  |  |  |  |
| 9.5. Uses DBMS software to create relational databases | * Creation of a database * Identification of primary and foreign key * Creation of relationship between tables | * Creates databases using DBMS software * Implements relationships | 2 |  |  |  |  |
| 9.6. Uses forms to view and update data | * Form design * Manipulation of properties of a form * Insertion of controls: Delete button | * Designs data input and editing forms * Inserts suitable controls to manipulate data | 2 |  |  |  |  |
| 9.7. Creates Queries to extract information | * Design of queries using query tool without using SQL structure * Use of criteria * Sorting of records | * Design queries to meet given criteria * Performs simple queries on the database | 2 |  |  |  |  |
| 9.8. Creates reports to present information | * Use of report Wizard * Printing of reports | * Creates reports for given purposes * Prints reports | 2 |  |  |  |  |

Date :- ……………………........ ……………………........ Signature of the Principal