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