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| **Competency** | **Competency Level** | **Content** | **Teaching – learning methodology** | **Learning outcomes** | **No of Peri** | **Due Date** | **Date Completed** | **Quality inputs** | **Comments** |
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| 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 | Students are supposed to explore the use of ICT and participate in a classroom discussion  Preparation of a booklet on the use of ICT in given fields |  Explains the nature of ICT   Elaborates the uses of ICT in various fields of work | 03 |  |  |  |  |
|  | 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 | Discussion with numerous examples  1. Provide students with items and let them decide whether they are data or information. 2. Ask the logic behind their decisions 3. Provide any two items out of input, process and output and let students decide the missing part with reasoning |  Describes various systems in day to day life.  Elaborates functions of an information system in terms of its main components | 02 |  |  |  |  |
|  | 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 * o Accuracy * Efficiency | 1. Design a group activity 2. Allow students to search information on the evolution and create a booklet 3. Get the students make presentations on their discoveries |  Explains landmarks in the evolution of computers  Discusses the enhancement in system characteristics with the evolution. | 02 |  |  |  |  |
| ***Assessment - 01*** | | |  |  |  |  |  |  |  |
| 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 | 1. Physical display of peripherals  2. Use movies to describe functionality of uncommon peripherals |  Identifies components of a computer system   Describes functions of each components | 02 |  |  |  |  |
|  | 2.2 Explores computer systems by function. | * Functions of a computer and its peripherals * Input * Processing * Output * Storage * Communication | 3. Use newspaper advertisements on specification of computer systems in the purchase of computers  Provide students with requirement specifications to purchase a computer and ask them to specify hardware for that purchase. |  Identifies components of a computer system   Describes functions of each components | 03 |  |  |  |  |
|  | 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 |  Pair work  Let each pair find out ports on the computer.  Ask them to draw a diagram to show location of such ports. Matching exercise between peripheral devices and ports. |  Describes main physical components of a computer   Describes functions of ports of a computer | 02 |  |  |  |  |
|  | 2.4 Uses the basic block diagram to demonstrate the computer system | * ALU and Control Unit * Flow path * Data and instruction signals * Control signals | 1. Discussion.  2. Use a motherboard to show the paths.  3. Use animations to explain the signal flow. |  Differentiate data and instruction signals from control signals   Explains the flow of signals in the computer system. | 01 |  |  |  |  |
|  | 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 | 1. Use network available in the computer lab to explain network characteristics of a LAN  2. Physical observation of a network of a institution. 3. Demonstrate with an animation. Provide simple specifications of a LAN and ask students to draw a rough sketch of the LAN explaining components to be used. |  Explains the purpose of networking   Describes physical layout of a network   Discusses the issues in networking | 03 |  |  |  |  |
| ***Assessment - 02*** | | |  |  |  |  |  |  |  |
| 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 systems | 1. Explain the concept of two states with respect to digital data. a. Discuss various types of data: Text and numbers, Images, Audio  2. Discuss how they are represented in relevant media  3. Demonstrate using visuals how data is represented in various media.  4. Highlight the base 10 and base 2 use of representation of positive integers. |  Explains that data can be represented using two states   Represents decimal numbers in binary | 02 |  |  |  |  |
|  | 3.2. Converts decimal numbers to Binary, Octal and Hexa Decimal | * Number systems:   Decimal, Binary, Octal, Hexa Decimal   * Methods for number systems conversions | Demonstration of conversions  Calculations on conversions |  Describes number systems with 8 and 16 as the bases   Computes position values of the numbers converted in each system. | 02 |  |  |  |  |
|  | 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 | 1. Demonstration of conversions.  2. Elicit the logic behind conversions between octal, hexadecimal and binary.  Calculations on conversions |  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 | 03 |  |  |  |  |
|  | 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 | 1. Display a variety of storage devices.  2. Ask to find out capacities.  3. Exercises on conversion between units. |  Describes storage units in terms of bytes   Compares capacity of various storage devices | 02 |  |  |  |  |
|  | 3.5. Explores coding systems in computers | * BCD * EBCDIC * ASCII * Unicode |  Explain ASCII code with word processing (eg. type ALT + 65 from number key pad for letter ‘A’)   Explain the need of Unicode   Explain why some coding systems are not much used now  .  Show the use of Sinhala/Tamil Unicode to extend the standard symbols. |  Explains how different coding systems are used  Explains limitations of each system | 01 |  |  |  |  |
| ***Asessment - 03*** | | |  |  |  |  |  |  |  |
| 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 | 1. Explanation of the concept of gates using day-to-day examples.  2. Simulation of gates using electrical circuits.  3. Final output of a combination of logic gates (eg. In ICs). Deduction of possible logic circuits from simple truth tables involving only two inputs |  Explains the action of logic gates  Draws truth tables for logic operations | 02 |  |  |  |  |
|  | 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 | Group activity: 1. Provide a real life problem like involving a control or alarm system.  2. Ask students to design the block diagram that shows the Boolean logic behind the solution.  3. Let each group present their solution to the class. |  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 | 02 |  |  |  |  |
| ***Assessment - 04*** | | |  |  |  |  |  |  |  |
| 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   Functions of the OS: user interface and resource management   Benefits of the OS  Utilities of an OS: Partitioning, Formatting, Defragmentation | Group Activity:  1. Prior to the learning in the classroom divide students into four groups. 2. Assign one task to each group: types, functions, benefits and utilities.  3. Ask one member of each group to make a classroom presentation of the finding of the group. 4. Teacher is supposed to elaborate on their findings and complete the lesson. Demonstration: Demonstrate partioning, formatting and defragmentation of a hard disk |  Describes the need of an operating system   Explains functions of an operating system   Explains utilities of an operating system | 02 |  |  |  |  |
|  | 5.2 Handles files and folders in Operating Systems |  Introduction to the files system o Drives o Folders o Files and file extensions o File and folder operations | 1. Hands on use of OS in the computer lab  2. Provide worksheets to try-out OS operations.  1. Conduct practical assessments to check OS operations.  2. Provide a list of user requirements with respect to a secretarial work. Ask students to design folder structure to organize documents. |  Carries out following operations: creation, deletion, renaming, copying  Organizes documents into folders according to needs | 04 |  |  |  |  |
| ***Assessments - 05*** | | |  |  |  |  |  |  |  |
| 6. Uses Word processing Software to Solve Day-to-day problems | : 6.1 Explores the concept and features of word  processing  6.2 Performs basic tasks in word processing software |  Functions of wordprocessing software   GUI of wordprocessing software | 1. Discussion of the use of the software for its basic operations.  2. Discussion and demonstration of basic operations.  3. Different ways of opening a wordprocessed document: through the software, by double clicking the document, through right-clicking.  4. Saving in different formats and password protection (eg. rtf) |  Discusses facilities of wordprocessing software   Explores GUI of wordprocessing software   Creates new documents  Opens existing documents   Saves and closes documents | 05 |  |  |  |  |
|  | 6.3: Uses different types of formatting in wordprocessing |  Formatting text   Graphics: Insertion and formatting   Shapes : Insertion and formatting | 1. Teacher demonstration of the tools of formatting. 2. Provide worksheets created to cover formatting techniques.  3. Provide meaningful exercises to enable them to learn in context.  4. Use of Unicode and Sinhala/Tamil fonts.  5. Provide unformatted text in soft form to carry out specified formatting. 6. Provide already done documents to recreate. |  Applies suitable text formatting   Manipulates graphics and draws simple shapes | 03 |  |  |  |  |
|  | 6.4 Manipulates table feature in wordprocessing software |  Insertion of tables  Column width and height   Deletion, insertion, splitting and merging of cells | 1. Teacher demonstration of the tools for tables.  2. Provide worksheets created to cover working with tables.  3. Provide meaningful exercises to enable them to learn in context.  3. Provide a hard copy of a tabulated data with formatting like merged cells etc.  5. Ask students create the table on wordprocessing software. |  Creates tables to insert data   Formats tables   Edits tables | 02 |  |  |  |  |
|  | 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. | 1. Provide documents with spelling mistakes to be typed.  2. Apply spell-checker to correct mistakes  3. Use printer to take a hard-copy meeting given specifications. |  Checks spelling and grammar of a document.   Prints documents with necessary settings. | 02 |  |  |  |  |
|  | 6.6 Uses the Mail Merge facility |  Document types o Common document o Source data | 1. Provide data table and master letter as hardcopies.  2. Ask students to create the master letter.  3. Ask students to carry out the mail merge.  4. Print the letters to a file.  5. Provide students with a letter suitable for mail merge.  6. Ask them to design the data table and master document |  Creates template document   Creates data tables   Merges data with template | 03 |  |  |  |  |
| ***Assessment - 06*** | | |  |  |  |  |  |  |  |
| 7. Uses Spreadsheet to solve simple statistical problems | 7.1 Explores a Spreadsheet to identify its basic features and functions.  7.2 Moves around the worksheet to gain hands on experience of data entry |  Introduction spreadsheets   GUI of spreadsheet software  Worksheet, columns, rows and cells   Moving around worksheet.   Data entry (label, number, formulae) | 1. Ask students to provide examples of tabulated data.  2. Start from tabulated data and move to concept of spreadsheets.  3. Demonstrate a worked spreadsheet to highlight basic features.  4. Provide worksheet to students to get familiarize with the GUI.  5. Provide a hard copy of worksheets to enter data. |  Lists functions of an electronic spreadsheet  Identifies features of GUI of spreadsheet software   Identifies components of a worksheet  Enters and edits data | 02 |  |  |  |  |
|  | 7.3 Performs basic mathematical operations |  Simple calculations using values and operators (+, -, \*, /,^)  Simple calculations using cell addresses and operators (+, -, \*, /,^) |  Laboratory sessions  : o Demonstrate how to do calculations.  o Provide exercises on calculations to be done on software |  Carries out calculations using basic operators   Uses cell references in calculations | 02 |  |  |  |  |
|  | 7.4 Uses inbuilt functions for calculations | SUM, AVERAGE, MAX, MIN, COUNT | Laboratory sessions  : 1. Demonstrate the use of functions.  2. Provide worksheets to create electronic version of it using software |  Identifies functions and its parameters   Uses basic built-in functions in calculations | 02 |  |  |  |  |
|  | 7.5 Formats a worksheet |  Font, Font size, Boldface, Italic etc.  Alignment (centre, left, right, justify)   Decimal places (increase and decrease) | Laboratory sessions  1. Remind similarity of the IDE with Wordprocessing software. 2. Demonstrate the use of formatting.  3. Provide worksheets to enter data and apply formatting.  4. Provide an unformatted data table  5. Ask students to create worksheet according to the given specifications. |  Formats and aligns data in cells   Sets decimal places according to requirements | 02 |  |  |  |  |
| **A*ssessment - 07*** | | |  |  |  |  |  |  |  |
|  | 7.6 Uses relative versus absolute cell references appropriately | Absolute and Relative cell references | 1. Demonstrate the use of relative and absolute addresses  2. Demonstrate the advantage of using absolute addressing  3. Ask students to find out the behavior of functions when relative and absolute cell addresses are used  4. Provide sufficient number of examples of the use of both addressing modes  5. Problems involving both mode of addressing to be solved manually.  6. Implementation of such solution using software. |  Explains relative and absolute addressing modes.   Uses both modes appropriately in calculations | 02 |  |  |  |  |
|  | 7.7 Creates charts using Spreadsheets to explain data |  Charts: chart type, chart options   Chart types: Bar, column, line and pie | 1. Demonstrate the creation of charts.  2. Provide worksheets with specification for charts  Laboratory sessions: Creation of graphs for given data sets. |  Identifies the relevant chart type   Present data using suitable built in chart types | 02 |  |  |  |  |
| 8. Produces effective presentations integrating multimedia | 8.1 Produces effective presentations integrating multimedia |  Introduction to presentation software.  Changing background, slide layout, slide designs.  Inserting text and multimedia | 1. Provide exemplary presentations and let students to draw the slide design on a paper.  2. Let students select a theme of their own choice and design their presentation on a paper. 3. Let students use presentation software to convert designs into the presentations.  4. Organise a pair work to design presentations independently. Then ask them to exchange designs. Then one member has to develop the other one’s design into the final product.  1. Provide students with a design.  2. Ask them to create the presentation as per the design |  Applies good practices in the use of presentation software  Formats slide layouts  Insert text, images, movies and sounds | 03 |  |  |  |  |
|  | 8.2 Applies suitable animations to enhance the quality of presentations |  Slide transitions   Custom animations | 1. Provide design specifications for a presentation involving animations.  2. Ask students to convert specifications into presentations.  3. Let students develop their own presentations. |  Applies suitable screen transitions   Applies suitable animations on screen objects | 03 |  |  |  |  |
| ***Assessment - 08*** | | |  |  |  |  |  |  |  |
| 9.Develops simple databases to elicit information | 9.1 Develops simple databases to elicit information |  Introduction to databases.   Definition of a database.   Advantages of databases.   Features of databases: Absence of redundancy, Efficiency, Accuracy, Consistency, Security, Validity, Simplicity.   Manual and electronic databases: comparison and contrast.   Introduction to Relational Databases: Tables, records, fields, key fields. | 1. Lead a discussion to identify places where data are stored.  2. Let students explain how they are organized (eg. Student registration details and attendance register)  3. Provide examples to demonstrate how absence of good database qualities could cause problems. |  Discusses nature and advantages of databases   Explains the features of relational databases  Explores the Concept of Database | 03 |  |  |  |  |
|  | 9.2 Creates a simple database with a single table, manually |  Field name, unique field, data types, field size | 1. Give a case where databases are involved.  2. Ask to identify one table, its fields and types. 3. Give partly worked examples to complete relational databases.  4. Discuss examples on how to break a database into tables.  5. Start off with a single table where everything is included.  6. Let students find fields and field types.  7. Let students find out key fields. |  Identifies the purpose of the database   Select suitable fields to create data tables | 02 |  |  |  |  |
|  | 9.3 Converts a manual database into electronic media. | Field name, data types, field size, Primary key, Field properties | 1. Use manual databases created in 9.2  2. Create the tables.  3. Set primary keys.  4. Enter data.  5. Provide a paragraph describing a database.  6. Ask students to sketch the database on paper.  7. Convert it into computer database using software. |  Identifies the purpose of the database   Select suitable fields to create data tables | 02 |  |  |  |  |
|  | 9.4 Design a simple relational database | Tables, fields and key fields: Primary key, foreign key, relationships | 1. A group activity involving 3 per group.  2. Each group is given a case to design at least two related tables.  3. Identification of primary and foreign fields. | 1. Provide a case involving a relational database.  2. Ask students to create relevant tables. 3. Ask them to identify primary and foreign keys | 02 |  |  |  |  |
|  | 9.5 Uses DBMS software to create relational databases |  Creation of a database   Identification of primary and foreign key   Creation of relationship between tables | 1. May use the databases created in 9.4  2. Pair-work is to be arranged in the computer lab  3 Use the created databases to evaluate performance.  4. Look for meaningful fields with correct types and sizes.  5. Check setting of primary and foreign keys |  Creates relational databases using DBMS software   Implements relationships | 02 |  |  |  |  |
|  | 9.6 Uses forms to view and update data |  Form design   Manipulation of properties of a form  Insertion of controls: Delete button | 1. Use databases created in 9.4.  2. Pair-work at a single computer.  3. Entry of meaningful data.  4. Inclusion of the Delete button to delete records |  Designs data input and editing forms   Inserts suitable controls to manipulate data | 02 |  |  |  |  |
|  | 9.7 Creates Queries to extract information. |  Design of queries using query tool without using SQL structure.   Use of criteria   Sorting of records | 1. Pair-work.  2. Provide a worksheet with suggested details to be retrieved using queries | Performs simple queries with built in criteria on the database. | 02 |  |  |  |  |
| ***Assessment - 09*** | | |  |  |  |  |  |  |  |
|  | 9.8 Creates reports to present information |  Use of report Wizard   Printing of reports | 1. Pair-work at a computer.  2. Provide a worksheet describing a database with data.  3. Ask to create queries for given criteria.  4. Ask to create reports based on the queries. |  Creates reports for given purposes   Prints reports | 02 |  |  |  |  |

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Date Principal