Information and Communication Technology

Grade 10

(2021)

Essential Contents

Information & Communication Technology

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Essential Contents (Grade 9 & 10)

Competency	Competency level	Content	Learning outcomes	Duration/ Periods
1.Investigates the place of the computer in the world of information	1.1 Investigates the contribution and impact of ICT towards national development	• Application of ICT in the society [e-government, agriculture, education(e-learning), health(e-health), industry, entertainment, e-commerce] • Digital Divide • Safe disposal of electronic waste • Career Opportunities	• Elaborates the uses of ICT in various fields of work • Describes the negative aspects arise in using ICT • Explains the career opportunities of ICT in the present society	03

	1.2 Investigates the computer as a system for converting data into information	• Components of a system
		     o Input
		     o Process
		     o Output
			• Elaborates functions of an information system in terms of its main components	01

	1.3 Explores the evolution of computers to identify its major developments	• Computer generations with processor technology
		    o Vacuum tubes
		    o Transistors
		    o Integrated circuits: LSIC,VLIC
		 • Improvements in system characteristics
		    o Size
		    o Capacity
		    o Speed
			• Explains landmarks in the evolution of computers
			 • Discusses the enhancement in system characteristics with the evolution.
				01

		o Accuracy o Efficiency		
2. Selects and uses computer hardware	2.1 Classifies computers using a variety of methods	● Computer classifications o Main frame, Mini, Micro, Super o Digital, analog and hybrid	● Briefly explains the features of different classes of computers	01
	2.2 Explores computer systems by function	● Functions of a computer and its peripherals o Input o Processing o Output o Storage o Communication ● Block diagram of the computer system with flow paths	● Identifies and describes components of a computer system and their functions ● Explains the flow of signals in the computer system.	02
	2.3 Selects computer and its peripherals according to the user requirements	● Basic Specifications of computer and its peripherals o Processor types and speed o Hard disk capacity o Monitor specifications o RAM specifications o VGA and sound ● Warranty ● Included software ● After sale services	● Identifies the user requirements in terms of technical specifications.	01
	2.4 Identifies and connects basic peripherals to the computer	● Basic computer components: keyboard, mouse, system unit and monitor ● Ports	● Describes main physical components of a computer	02

		- PS/2 port - Serial port - Parallel port - USB port - RJ 45 - Video port	● Describes functions of ports of a computer	

	2.5 Investigates benefits and concerns of computer networks for optimal communication	● Purpose of computer networks
		● Components of a network
		   o Network Interface Card
		   o Internal and external devices
		   o Transmission media:
		     guided :(twisted pair, coaxial, fiber optics)
		   o unguided
		   o Modem, hub, switch, router
		● Types of computer networks
		   o LAN
		   o MAN
		   o WAN
		● Advantages and disadvantages of networks
		● Sending messages through a computer network
		● Sharing resources (Software, Folder, File, CD Drive, Printer etc.)
			● Explains the purpose of networking
			● Describes physical layout of a network
			● Discusses the issues in networking.
			● Sends messages through computer network
			● Shares the resources through a computer network
				03

3.Improves skills in Physical Computing	3.1 Programs simple digital systems (Micro controller based kit)	● Development of programs for detecting the inputs from sensors ● Development of programs for controlling actuators	● Develops programs for detecting the inputs from sensors ● Develops programs for	04

			controlling actuators of simple sense detector	
4. Investigates the methods used to represent data in computer systems	4.1 Uses the binary number system to represent data in computer systems	● Data representation in computers ● Binary number system ● Most and Least Significant Bit/Digit	● Explains that data can be represented using two states ● Represents positive decimal integers in binary	02
	4.2 Converts numbers to different number systems	● Number systems: Decimal, Binary, Octal, Hexa-Decimal ● Methods for number system conversions (positive integers only)	● Describes number systems ● Converts decimal numbers to Binary, Octal and Hexa-Decimal numbers ● Converts Binary numbers to Decimal, Octal and Hexa-Decimal numbers ● Converts Decimal, Octal and Hexa-Decimal numbers to Binary numbers	03
	4.3 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 drive	● Describes storage units in terms of bytes ● Compares capacity of various storage devices	01
	4.4 Explores coding	● BCD	● Explains how different	01

		systems in computers	● EBCDIC ● ASCII ● Unicode	coding systems are used ● Explains limitations of each system	
5. Uses Boolean logic to work effectively with logic gates	5.1 Identifies basic logic operators and draws truth tables to illustrate their functions		● Operators: AND, OR, NOT,NOR, NAND, ● Introduction to Truth Tables (maximum of three inputs)	● Explains the action of logic gates ● Draws truth tables for logic operations	02
	5.2 Applies concepts of Boolean logic to find solutions to simple day-to-day life problems		● Design of logic for simple real world applications.	● Draws block diagrams to represent solutions to simple problems involving Boolean logic ● Converts block diagrams into logic diagrams	02

6. Works effectively with Operating Systems	6.1 Explores operating systems by type, functions, benefits and concerns.		● Types of operating systems:
			single user - multi user
			  o Multi Tasking
			  o Real Time
			  o Distributed
			● Functions of the OS: User interface and resource management
			  o Benefits of the OS
			  o Utilities of an OS: Partitioning Formatting, Defragmentation
				● Explains functions of an operating system
				● Explains utilities of an operating system
					01

	6.2 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
				● Carries out file and folder operations: creation, deletion, renaming, copying
				● Organizes documents
					02

			into folders according to needs	
7. Uses Word processing Software to Solve Day-to-day problems	7.1 Performs basic tasks in word processing software	● Creating, opening, saving and closing documents ● Page setup: paper size, margins, orientation	● Creates, opens, saves and closes documents	01
	7.2 Uses different types of formatting in word processing	● Formatting text ● Graphics: Insertion and formatting ● Shapes : Insertion and formatting ● Tables: Insertion and formatting	● Applies suitable text formatting ● Manipulates graphics and draws simple shapes ● Creates tables to insert data and formats tables	03
	7.3 Corrects and prints documents	● Spelling and grammar checking ● Find and replace ● Selection of printers and print options	● Checks spelling and grammar of a document ● Prints documents with necessary settings	01
	7.4 Uses the Mail Merge facility	● Need of Mail Merge ● Steps in Mail Merge	● Describes the use of Mail Merge ● Creates simple documents with Mail Merge	02
8. Uses Spreadsheet to solve simple statistical problems	8.1 Explores a Spreadsheet to identify its basic features and functions	● Introduction spreadsheets ● GUI of spreadsheet software ● Worksheet, columns, rows and cells ● Moving around the worksheet ● Data entry of different types (label, number, formulae)	● Lists functions of an electronic spreadsheet ● Identifies features of GUI of spreadsheet software ● Identifies components of a worksheet	02

		● Decimal places (increase and decrease)	● Enters and edits different types of data ● Sets decimal places according to requirements	
	8.2 Performs calculations using basic mathematical operations and inbuilt functions	● Simple calculations using cell addresses and operators (+, -, *, /,^) ● Simple inbuilt functions - SUM, AVERAGE, MAX, MIN, COUNT, COUNTA ● Data sorting	● Carries out calculations using basic operators ● Uses cell references in calculations. ● Identifies functions and its parameters ● Uses basic built-in functions in calculations ● Applies spreadsheet software for data sorting	03
	8.3 Uses relative versus absolute cell references appropriately	● Absolute and Relative cell references.	● Explains relative and absolute addressing modes ● Uses both modes appropriately in calculations	01
	8.4 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	01
9. Uses Presentation	9.1 Produces effective	● Changing Background, Slide layout,	● Formats slide layout	02

software to develop electronic presentations	presentations integrating multimedia	Slide designs. ● Inserting text and multimedia	● Inserts text, images, movies and sounds	
	9.2 Applies suitable animations to enhance the quality of presentations	● Slide transitions ● Custom animation	● Applies suitable screen transitions ● Applies suitable animations on screen objects ● Creates simple presentation with enhanced features	01
10. Develops simple databases to elicit information	10.1 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 ● Introduction to Relational Databases: Tables, records, fields, key fields	● Discusses nature and advantages of databases ● Explains the features of relational databases	02
	10.2 Creates a simple database with a single table manually and converts it to electronic	● Field name, unique field, data types, field size ● Creation of databases using DBMS software	● Identifies the purpose of the database ● Select suitable fields to create data tables ● Creates databases using DBMS software	02

	10.3 Design a simple relational database manually and create it using DBMS	● Tables, fields and key fields: Primary key, foreign key ● Creation of Relationships between tables manually and electronically	● Designs simple relational databases manually ● Creating simple relational databases electronically ● Identifies primary and foreign keys ● Implements relationships	03
	10.4 Uses forms to view and update data	● Form design ● Manipulation of properties of a form ● Insertion of controls: Delete button ● Insertion of data	● Designs data input and editing forms ● Inserts suitable controls to manipulate data ● Inserts data using forms	02
	10.5 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	02
	10.6 Creates reports to present information	● Use of report Wizard ● Printing of reports	● Creates reports for given purposes ● Prints reports	
			Total	**60**