

Proposed Date/Week Term 1	Unit/Section	Topic	Modules
Week 1	FUNDAMENTALS OF HARDWARE AND SOFTWARE	1. <i>The general-purpose computer system</i>	1.1 – Categories (types) of computer systems
			General-Purpose/Special Purpose
			Supercomputer, Mainframe, Microcomputer, Microprocessor
			1.2 – Major functions of computer systems Input, Processing, Storage, Output
		2. <i>Functions of the major hardware components of a computer system</i>	2.1– Central Processing Unit (CPU)
			2.2-- Control Unit and ALU
			2.3-- Main memory/immediate access storage
			2.4-- Secondary storage
			2.5 -- Input/ Output devices (Overview)
Week 2	FUNDAMENTALS OF HARDWARE AND SOFTWARE	3. <i>Functions and uses of primary storage devices</i>	3.1– Bistable Devices
			3.2— ROM
			3.3— PROM (Programmable Read Only Memory)
			3.4— EPROM (Erasable Programmable Read Only Memory)
			3.5 – RAM
		4. <i>Manipulate units of storage</i>	4.1– Bit
			4.2—Byte
			4.3— kilobyte, megabyte, gigabyte, terabyte,
			4.4— word, word size

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Week 3	FUNDAMENTALS OF HARDWARE AND SOFTWARE	5. <i>Secondary storage media</i>	5.1 – Hard disk (fixed head, moving head, external)
			5.2 -- Optical disks (CD, DVD)
			5.3 -- Flash drive, Flash memory cards
			5.4 -- Floppy disk
			5.5 -- Magnetic tape
			5.6 – comparisons based on portability, speed and capacity
		6. <i>Terms associated with storage devices</i>	6.1– Read/write head, sectors, tracks, buffers, cylinders
			6.2-- Access time
			6.3—Random access, sequential access, direct access
			6.4-- Device interfaces: SCSI, IDE, SATA
Week 4	FUNDAMENTALS OF HARDWARE AND SOFTWARE	7. <i>Input devices and media</i>	7.1– Keyboard
			7.2—Pointing devices, Mouse, Joystick
			7.3-- Light-pen, Touch terminals
			7.4— Optical mark reader (OMR)
			7.5— Character readers (OCR, MICR)
			7.6 – Bar Code Reader, point of sale (POS) system
			7.7 -- Document Scanner
			7.9—Pads and tablets,
			7.10— Digital camera, webcam
			7.11 -- Remote control,
			7.12—Sound Capture, Voice response unit
			7.13—Biometric systems, sensors

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Week 5	FUNDAMENTALS OF HARDWARE AND SOFTWARE	8. <i>Output devices</i>	8.1 – Visual display unit: resolution, types, sizes
			8.2 -- Printers: Impact and non-impact, types: (Character, line, page, laser, inkjet, dot matrix) Characteristics: (speed, quality, storage capacity)
			8.3 -- Plotters
			8.4 -- Audio output devices (speakers, head-phones, earphones)
			8.5 -- Microfilm
			8.6 -- Terms such as hard copy, soft copy, human readable and machine-readable.
		9. <i>Interpret the hardware specifications of a computer system</i>	9.1 -- CPU type and speed;
			9.2 -- Memory: capacity, type, word size, speed.
			9.3 -- Hard drive: capacity, speed;
			9.4 – USB, fire wire, expansion slots, ports.
Week 6-7		10. <i>Data storage and manipulation</i>	10.1 -- Number systems Binary, octal and hexadecimal
			10.2 – Integer Representation
			Sign and magnitude, BCD, two's complement
			10.3 -- Binary addition and subtraction.
			10.4 – Character representation (ASCII)

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Week 7	FUNDAMENTALS OF HARDWARE AND SOFTWARE	11. <i>Systems programs and application programs;</i>	11.1 – Systems software Operating systems, translators, utilities
			11.2 -- Application software General purpose, special purpose, custom written. Customization, integrated software.
Week 8		12. <i>Functions of an operating system;</i>	12.1 -- User Interface
			12.2 -- File management, memory management
			12.3 – Device management
			12.4 -- Input/output management
			12.5 – Security
			12.6 – Process management
Week 9		13. <i>Process Scheduling</i>	13.1 -- Define Multitasking
	13.2 – Define Multiprogramming		
	13.3 – Define Multiprocessing		
Week 10	14. <i>Processing modes</i>	14.1 – Batch processing	
		14.2 – Real-time processing	
		14.3 – On-line	
		14.4 – Time Sharing	
Week 11	15. <i>User Interfaces</i>	15.1 -- Software interfaces Command driven, Menu Driven Interface, Graphical User interface (GUI) (pull-down and pop-up menus, icons)	
		15.2 – Hardware interface Touch screens, non-visual interface, sensors, and Braille keyboards.	
Week 12 - 13			Review all topics

Proposed Date/Week Term 2	Unit/Section	Topic	Modules
Week 1 - 3	WORD PROCESSING	1. <i>editing features</i>	1.1 -- Deleting and inserting characters, words, lines, sentences, paragraphs.
			1.2 -- Type-over mode.
			1.3 -- Selecting blocks of text
			1.4 -- Copying and moving sections of text
		2. <i>commonly available features</i>	2.1 -- Page numbers, page breaks
			2.2 -- Text alignment, word-wrap, margins, tabs,
			2.3 -- Page length, default settings,
		3. <i>Formatting features for documents</i>	3.1-- Margins, tab stops, line spacing, page breaks, page numbers
			3.2 -- Left and right justification, centre line, underline
			3.3 -- highlight, uppercase, bold, and italic
		4. <i>Document Navigation</i>	4.1 -- Headers and Footers
			4.2 – Footnotes and Endnotes
		5. <i>Character formatting</i>	5.1-- Underline, bold, italics, font types and sizes, superscript and subscript.
		6. <i>Advanced document techniques</i>	6.1 -- Combine Documents
			6.2 – Block operations
			6.3 – Columns and Tables
		7. <i>Edit and review</i>	7.1 Search and replace
			7.2 Spell check
		8. <i>Insert objects</i>	8.1 Text Files
			8.2 Graphics
			8.3 Tables
		9. <i>Documents integrity</i>	9.1 Automatic save and backup copy, password protection, track changes.
		10. <i>Mail merge theory</i>	10.1 Creation of primary documents; Field names.
			10.2 Data files in mail merge application
			10.3 Field names

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Week 4 - 6	SPREADSHEETS	1. <i>Spreadsheet definitions</i>	1.1 – Define a spreadsheet
			1.2 – Define: Row, column, cell, cell address, label, value, formula, function, worksheet, template, range, title, window, record.
		2. <i>Pre-defined functions</i>	2.1 -- sum, average, date (=Today), maximum, minimum, count, if, vlookup, rank.
		3. <i>Advanced arithmetic formulae</i>	3.1 -- addition, subtraction; multiplication; division; powers; square roots, the use of brackets
		4. <i>Cell address</i>	4.1 -- Relative address
			4.2 -- Absolute address
			4.3 – Use cases for both
		5. <i>Title locking</i>	5.1 -- row and column title locking
		6. <i>replicate (copy) formulae into other cells;</i>	6.1 -- Relative versus absolute addressing
			6.2 -- Effects of move, copy, delete operations on formulae
		7. <i>Manipulate columns and rows;</i>	7.1 – Insert/Delete columns and rows
		8. <i>Format a spreadsheet;</i>	8.1 -- Numeric data formatting,
			8.2 -- Text formatting
			8.3 -- Alignment
8.4 -- Borders			
9. <i>Sort a spreadsheet;</i>	9.1 -- Primary field		
	9.2 – Secondary field		
	9.3 -- Ascending vs. descending order		
10. <i>Find record</i>	10.1 -- Simple criterion		
	10.2 – Complex criterion		

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Week 4 - 6	SPREADSHEETS	11. <i>Charts</i>	11.1 Selecting the appropriate chart 11.2 Bar charts, line graphs, pie charts, 11.3 Charts customization: Titles, axes labels
		12. <i>Manipulate multiple worksheets;</i>	12.1 Use of two or more worksheets to solve problems involving some or all of the functions and operations listed above.
		13. <i>Import objects</i>	13.1 Graphics 13.2 Tables
Week 7-12	PROBLEM-SOLVING AND PROGRAM DESIGN	1. <i>Steps in problem-solving</i>	1.1 Listing of steps
		2. <i>Decompose a simple problem</i>	2.1 The components are: input; process; storage; output
		3. <i>Variables and constants</i>	3.1 Define a variable
			3.2 Define a constant
			3.3 Use cases for each
		4. <i>Data types</i>	4.1 Integers
			4.2 Real
			4.3 Character, String
			4.4 Literal
			4.5 Boolean
		5. <i>Concept of algorithms;</i>	5.1 Definition of Algorithm
			5.2 Characteristics of an Algorithm
		6. <i>Representing Algorithms</i>	6.1 Flow charts
			6.2 Pseudo code
			6.3 Sequential Logic (arithmetic operators)
			6.4 Decision Logic (Relational operators)
			6.5 Repetition Logic
7. <i>Truth Tables</i>	7.1 Logical operators (AND,OR,NOT)		
8. <i>Algorithms to solve simple problems</i>	8.1 Applied problem solving techniques		
	8.2 Simple problems including; average, maximum		

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Week 7-12	PROBLEM-SOLVING AND PROGRAM DESIGN	9. <i>Test algorithms for correctness;</i>	9.1 Construction and use of trace tables to determine result
		10. <i>Use the top-down design approach to problem solving</i>	10.1 Application of stepwise refinement to problems with two or more tasks.

Proposed Date/Week Term 3	Unit/Section	Topic	Modules
Week 1	PROGRAM IMPLEMENTATION	1. <i>Low-level and high-level programming languages</i>	1.1 Low-level language (Machine or Assembly Language);
			1.2 High- level language (Pascal, C)
		2. <i>Generations of programming languages;</i>	2.1 Characteristics of first through to fifth generation languages
3. <i>Steps associated with implementing a program;</i>		3.1 Create source code	
		3.2 Compile 3.3 Linking 3.4 Executing 3.5 Maintain program	
4. <i>Terms and concepts in programming;</i>		4.1 Testing, debugging, syntax errors, logic errors, run-time errors, dry run, test data.	
Week 2 - 4		5. <i>Declare elementary data types;</i>	Note: Use documentation conventions 5.1 Integers, real numbers, characters. 5.2 Variable and Constant declarations
		6. <i>Manipulate data;</i>	6.1 Reading and writing from variables 6.2 Arithmetic operations
	7. <i>Control Structures</i>	7.1 Conditional branching: if-then, if-then-else 7.2 Loops: while, repeat, for	
Week 5 - 6	8. <i>Manipulate data in a list;</i>	8.1 Declare 1-dimensional arrays 8.2 Reading from and writing to arrays 8.3 Traversing arrays 8.4 Linear search	
	9. <i>Program testing and checking</i>	9.1 Testing and debugging techniques	
	10. <i>Program documentation</i>	10.1 Importance of documentation 10.2 Internal documentation 10.3 External documentation	

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Week 7	INFORMATION PROCESSING	<i>1. Data and Information</i>	1.1 Define Data 1.2 Define Information
		<i>2. Role of Information Processing systems</i>	2.1 Types of Information Processing 2.2 Information retrieval and management
		<i>3. Sources of data</i>	3.1 Source document. 3.2 Turnaround document. 3.3 Human-readable document. 3.4 Machine-readable document.
		<i>4. Validation and verification of data</i>	4.1 Difference between validation and verification. 4.2 Range check 4.3 Reasonableness checks 4.4 Data type checks 4.5 Inconsistency checks
		<i>5. Examples of verification/validation</i>	5.1 Double entry
Week 8		<i>6. File organization and access;</i>	Organization 6.1 Sequential, 6.2 Random, 6.3 Index-sequential Access 6.4 Direct- access 6.5 Sequential-access
		<i>7. Examples of file organization and access</i>	7.1 Associate an appropriate file structure and access method to a specific use case
Week 9 – 10	End – of –Year Review	<i>All Topics</i>	