M.L. Dhanukar College of Commerce
Teaching Plan: 2024 - 25

Department: **Information Technology**   **Semester: III**

Class**: S.Y.B.Sc.I.T.**

Subject**: Python Programming**

Name of the Faculty**: Archana Talekar**

Month	Topics to be Covered	Internal Assessment	Number of Lectures
June	**Unit I** • Introduction • Variables and Expressions • Conditional Statements • Looping • Control statements **Unit II** • Functions: Function Calls, Math Functions, Functions Definitions and Uses, Parameters and Arguments, Return Values, Boolean Functions		12
July	**Unit II** • Strings: Sequence, Traversal with for Loop, String Slices, Searching, Looping, Counting, String Methods, Comparison**,** Operations **Unit III** • Lists • Tuples and Dictionaries • Files • Exceptions		18
August	**Unit IV** • Regular Expressions • Classes and Objects • Multithreaded Programming • Modules		10
September	**Unit V** • Creating the GUI Form and Adding Widgets • Layout Management • Look and Feel Customization • Storing Data in Our MySQL Database via Our GUI		10

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M.L. Dahanukar College of Commerce

Teaching Plan: 2024 - 25

Department: I.T.   **Class: B.Sc.(I.T.)**   **Semester: III**

Subject: Data structure

Name of the Faculty: Priyanka kathale

Month	Topics to be Covered	Internal Assessment	Number of Lectures
June	**Introduction:** Data and Information, Data Structure, Classification of Data Structures, Primitive Data Types, Abstract Data Types, Data structure vs. File Organization, Operations on Data Structure, Algorithm, Importance of Algorithm Analysis, Complexity of an Algorithm, Asymptotic Analysis and Notations, Big O Notation, Big Omega Notation, Big Theta Notation, Rate of Growth and Big O Notation. **Array**: Introduction, One Dimensional Array, Memory Representation of One Dimensional Array, Traversing, Insertion, Deletion, Searching, Sorting, Merging of Arrays, Multidimensional Arrays, Memory Representation of Two Dimensional Arrays, General Multi-Dimensional Arrays, Sparse Arrays, Sparse Matrix, Memory Representation of Special kind of Matrices, Advantages and Limitations of Arrays.		10
July	**Linked List:** Linked List, One-way Linked List, Traversal of Linked List, Searching, Memory Allocation and De-allocation, Insertion in Linked List, Deletion from Linked List, Copying a List into Other List, Merging Two Linked Lists, Splitting a List into Two Lists, Reversing One way linked List, Circular Linked List, Applications of Circular Linked List, Two way Linked List, Traversing a Two way Linked List, Searching in a Two way linked List, Insertion of an element in Two way Linked List, Deleting a node from Two way Linked List, Header Linked List, Applications of the Linked list, Representation of Polynomials, Storage of Sparse Arrays, Implementing other Data Structures. **Stack**: Introduction, Operations on the Stack Memory Representation of Stack, Array Representation of Stack, Applications of Stack, Evaluation of Arithmetic Expression, Matching Parenthesis, infix and postfix operations, Recursion		14
August	**Queue:** Introduction, Queue, Operations on the Queue, Memory Representation of Queue, Array representation of queue, Linked List Representation of Queue, Circular Queue,		14

	Some special kinds of queues, Deque, Priority Queue, Application of Priority Queue, Applications of Queues. **Sorting and Searching Techniques** Bubble, Selection, Insertion, Merge Sort. Searching: Sequential, Binary, Indexed Sequential Searches. **Tree:** Tree, Binary Tree, Properties of Binary Tree, Memory Representation of Binary Tree, Operations Performed on Binary Tree, Reconstruction of Binary Tree from its Traversals, Huffman Algorithm, Binary Search Tree, Operations on Binary Search Tree, Heap, Memory Representation of Heap, Operation on Heap, Heap Sort. **Advanced Tree Structures:** Red Black Tree, Operations Performed on Red Black Tree, AVL Tree, Operations performed on AVL Tree, 2-3 Tree, B-Tree.		
September	**Hashing Techniques** Hash function, Address calculation techniques, Common hashing functions Collision resolution, Linear probing, Quadratic, Double hashing, Bucket hashing, Deletion and rehashing **Graph**: Introduction, Graph, Graph Terminology, Memory Representation of Graph, Adjacency Matrix Representation of Graph, Adjacency List or Linked Representation of Graph, Operations Performed on Graph, Graph Traversal, Applications of the Graph, Reachability, Shortest Path Problems, Spanning Trees.		10

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M.L. Dahanukar College of Commerce

Teaching Plan: 2024 - 25

Department: I.T.   **Class: S.Y.B.Sc.(I.T.)**   **Semester:III**

Subject: Computer Network

Name of the Faculty: Amit Bane

Month	Topics to be Covered	Internal Assessment	Number of Lectures
June	1.Data communications, networks, network types, Internet history,standards and administration. 2.Protocol layering, TCP/IP protocol suite, The OSI model. 3.Data and signals, periodic analog signals, digital signals, transmission impairment, data rate limits, performance. 4.Digital-to-digital conversion, analog-to-digital conversion, transmission modes, digital-to-analog conversion, analog-to-analog conversion.		14
July	1.Multiplexing, Spread Spectrum 2.Guided Media**,** Unguided Media 3.Introduction, circuit switched networks, packet switching, structure of a switch. 4.Link layer addressing, Data Link Layer Design Issues, Error detection and correction, block coding, cyclic codes, checksum, forward error correction, error correcting codes, error detecting codes. 5.DLC services, data link layer protocols, HDLC, Point-to-point protocol. 6.Random access, controlled access, channelization, Wired LANs – Ethernet Protocol, standard ethernet, fast ethernet, gigabit ethernet, 10 gigabit ethernet,		14
August	1.Introduction, IEEE 802.11 project, Bluetooth, WiMAX, Cellular telephony, Satellite networks.		14

	2. Network layer services, packet switching, network layer performance, IPv4 addressing, forwarding of IP packets, Internet Protocol, ICMPv4, Mobile IP 3.Introduction, routing algorithms, unicast routing protocols. 4.IPv6 addressing, IPv6 protocol, ICMPv6 protocol, transition from IPv4 to IPv6. 3.Introduction, Transport layer protocols (Simple protocol, Stop-and-wait protocol, Go-Back-n protocol, Selective repeat protocol, Bidirectional protocols)		
September	1. Transport layer services, User datagram protocol, Transmission control protocol. 2. World wide-web and HTTP, FTP, Electronic mail, Telnet, Secured Shell, Domain name system.		06

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Teaching Plan: 2024 - 25

Department: I.T.   **Class: S.Y.BSc.(I.T.)**   **Semester: III**

Subject: Operating Systems

Name of the Faculty: Ms. Rasika Sawant

Month	Topics to be Covered	Internal Assessment	Number of Lectures
June	**Unit I: Operating System Overview**: Objective and Functions, Evolution, Achievements, Modern Operating Systems, Fault tolerance, OS design considerations for multiprocessor and multicore, overview of different operating systems. **Processes:** Process Description and Control.		08
July	**Unit II: Threads Concurrency:** Mutual Exclusion and Synchronization. **Unit III: Concurrency:** Deadlock and Starvation. **Memory:** Memory Management, Virtual Memory.		20
August	**Unit IV: Scheduling:** Uniprocessor Scheduling, Multiprocessor and Real-Time Scheduling		10
September	**Unit V: IO and File Management:** I/O Management and Disk Scheduling. File Management. **Operating System Security.**		10

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M.L. Dahanukar College of Commerce

Teaching Plan: 2024 - 25

Department: I.T.   **Class: S.Y.B.Sc.(I.T.)**   **Semester: III**

Subject: APPLIED MATHEMATICS

Name of the Faculty: Mrs. Manisha Warekar

Month	Topics to be Covered	Internal Assessment	Number of Lectures
June	Matrice, Complex Numbers & Multiple Integral		15
July	Beta & Gamma integral, Laplace & Inverse Laplace Transformation, Eigen values & Eigen Vectors		15
August	Ordinary Differential Equations of First order & First Degree, First order & Higher degree, Higher Degree & First order, Error Function		15
September	DUIS & Application of Multiple Integral		5

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