

Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science

Annual Teaching Plan

Academic Year: 2021-22

Semester: B.Sc. Sem-III,IV,V,VI

Subject: Computer Science

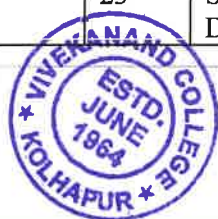
Course Title: Computer Network & Advanced
Computer Network, Operating System and Linux

Name of the teacher: Dr. V. B. Waghmare

Month: October 2021				Module/Unit:	Sub-units planned:
Course	Lectures	Practicals	Total		
B.Sc. III	7	16	23	Unit-1 Introduction to Computer Network Definition, Goals, Application, Basic Concept: Entities, Layers, Protocols, Computer Network. Classification Of Computer Network:	Transmission Techniques: Scale, Connection Method, Functional Relationship, Network Topology, services provided Protocols, Network Architecture: Protocol Hierarchy, Information flow design issues for the layers, Merits and demerits of layer architecture, service primitives, standardization network.
B.Sc. II	7	16	23	Introduction What Operating Systems Do, Computer-System Organization, Computer-System Architecture, Operating-System Structure Operating-System Operations	Process Management, Memory Management, Storage Management, Protection and Security Distributed Systems, Special-Purpose Systems, Computing Environments, Operating-System Services, User Operating-System Interface, System Calls, Types of System Calls, System Programs, Virtual Machines, Operating-System Generation, System Boot
Month: November 2021				Module/Unit:	Sub-units planned:
Course	Lectures	Practicals	Total		
B.Sc. III	10	16	26	Unit-2 Data Communication Objectives, four analysis, Band limited signal, Maximum data rate & channel.	Transmission Impairments: Attenuation Distortion, Delay, Dispersion, Noise. Data Transmission modes: Serial & Parallel, Simplex, Half Duplex, Full Duplex & Simplex. Synchronous & Asynchronous Transmission.
B.Sc. II	7	16	23	Process Management Processes- Process Concept, Process Scheduling, Operations on Processes, Interprocess Communication, Examples of IPC Systems	Thread- Threads
Month: December 2021				Module/Unit:	Sub-units planned:
Course	Lectures	Practicals	Total		
B.Sc. III	12	16	28	Unit-3 Introduction to Windows Server 2008 Managing Windows Server 2008: 1. Working with administrative tool using control panel, Graphical administrative tool & command line utility. 2. Working with computer management: Computer management system tools, Computer management storage tools, computer management services and application tools. 3. Using system console.	Active Directory Physical Architecture: Top level view, Local security Authority, Directory service architecture, Data storage architecture. Logical Architecture: Object, Domain, Trees & forests Trust. Managing Users & Computers, Managing Domain user account, Types of user, User account policies, Password setting, User account capabilities, Properties & Rights, Create computer account, Organization Chart.




B.Sc. II	7	16	23	CPU Scheduling-Scheduling Criteria, Scheduling Algorithms	(First-Come, First-Served Scheduling, Shortest-Job-First Scheduling, Priority Scheduling, Round-Robin Scheduling, Multilevel Queue Scheduling)
Month: January 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Semester Examination	
B.Sc. III					
B.Sc. II	7	16	23		
Month: February 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Unit-1 Reference Model	TCP/IP: Concept, history, Layers: Host to network, Internetwork, Transport, Application. Comparative study of ISO-OSI & TCP/IP
B.Sc. III	10	4	14	ISO-OSI: principle of layers, data link, Network, Transport, Session, Presentation & Application (Each layer with its function, Protocol, Design issues, Components),	
B.Sc. II				Semester Examination	
Month: March 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Unit-3 File Sharing and Security:	Permissions: Understand shares permission, Configuring share permission. Managing File And Folder Permission: File & Folder ownership, permission inheritance for files & folders, Configuring files and folder permission, Auditing files & folder Access. Kerboes protocol.
B.Sc. III	10	16	26	File sharing essential: Understanding file sharing model, using and finding shares, Hiding & controlling share access, special & administrative shares, Creating and Publishing Shared Folders, Cresting shares by using: Windows explorer Computer Management, Publish shares in active directory Managing Shares	
B.Sc. II	7	16	23	Memory Management	Virtual Memory -Demand Paging, Copy-on-Write, Page Replacement (FIFO, Optimal, LRU, MFU,LFU), Allocation of Frames, Thrashing, Memory-Mapped Files
				Main Memory-Swapping, Contiguous Memory Allocation, Paging, Structure of the Page Table, Segmentation, Example: The Intel Pentium,	
Month: April 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Unit-4 Managing Group Policy	Group policy setting, Group policy architecture. Implementation Group Policy: Working with local group policy, Group policy management console, Default group policy object, managing group policy inheritance & processing.
B.Sc. III	10	16	26	Managing Group: Understanding group, By default Group, Creating Group, Adding Member To Group, Delete Group, Modifying Group.	
B.Sc. II	7	16	23	Storage Management	File-System Interface-File Concept, Access Methods, Directory Structure, File-System Mounting, File Sharing, Protection,
Month: May 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Understanding Group Policy: Local & Active Directory Group Policy	Group Policy
B.Sc. III	10	16	26		
B.Sc. II	7	16	23	File-System Structure, File-System Implementation, Directory Implementation,	Efficiency and Performance, I/O Systems-I/O Hardware,



Month: June 2022				Allocation Methods, Free-Space Management,	Application I/O Interface, Kernel I/O Subsystem
Course	Lectures	Practicals	Total	Module/Unit:	Sub-units planned
B.Sc. III				Final Practical Examination	
B.Sc. II	7	16	23		
Month: July 2022				Linux Scripting Writing and running the shell script, read, echo, decisions and loop control structure, file tests, exit, command line arguments,	exporting shell variable, arrays, shell function, writing data entry script to create data files, data validations before storing on hard disk.
Month: July 2022				Module/Unit:	Sub-units planned
Lectures	Practicals	Total		Final Examination	


Dr. V. B. Waghmare


Dr. V. B. Waghmare
Head of Department



HEAD
DEPARTMENT OF COMPUTER SCIENCE
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science

Annual Teaching Plan

Academic Year: 2021-22

Semester: B.Sc. Sem-I,II,V,VI

Subject: Computer Science

Course Title: Internet Technology-I
Internet Technology-II
Problem Solving using Computers
(Python Programming)

Name of the teacher: Ms. R. Y. Patil

Month: October 2021				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Introduction to Flask:	Flask as Micro Framework, Characteristics, Who uses Flask, Setup tools and pip (Installing Python, Installing Flask), working with virtualenv (Creating new VE, Activating and Deactivating VE, Adding and Removing packages to-from VE), Introduction to IDE (PyCharm, PyDev), Application Structure (Initialization, Routes and View Functions, Server Startup, The Request-Response Cycle, Application and Request Contexts, Request Dispatching, Request Hooks, Responses, Command-Line Options with Flask-Script), First Simple Application
B.Sc. III	7	16	23		
B.Sc. I	7	16	23	UNIT-I-Introduction to Programming Languages:	Programming languages-their classification and characteristics, language translators and language translation activities Planning the Computer Program: What is program and programming paradigms Concept of problem Solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation.
Month: November 2021				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Jinja Templating:	The Jinja2 Template Engine, Rendering Templates, Comments, Variables, Control Structures, Filters, Templates with include and Inheritance, Twitter Bootstrap Integration with Flask- Bootstrap, Custom Error Pages, Links, Static Files
B.Sc. III	10	16	26		
B.Sc. I	7	16	23	UNIT-II-Building Blocks of Program: Python Interpreter, Writing and executing simple program, Basic Data Types:	Data, Data Types, Data Binding, Variables, Constants, Declaration, Operations on Data such as assignment, arithmetic,



					relational, logical or boolean, ternary, bitwise, increment or decrement operators. Introduction to Python Programming: Features, Structure of a Python Program(Python Shell)
Month: December 2021				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Creating and Rendering Forms: Cross-Site Request Forgery (CSRF)	Protection, Form Classes, HTML Rendering of Forms, Form Handling in View Functions, Redirects and User Sessions, Message Flashing, Validating Fields on the server side, Creating custom fields and validation
B.Sc. III	12	16	28		
B.Sc. I	7	16	23	UNIT-III- Conditional Statements: if, if-else, nested if-else Looping: for, while, nested loops, else clause with while and for loop Control statements: Terminating loops, skipping specific conditions	break, continue, pass
Month: January 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Semester Examination	
B.Sc. III					
B.Sc. I	7	16	23	Numeric Functions: Manipulation:	abs(), ceil(), floor(), max(), min(), pow(), sqrt() String Declaring strings, String immutability, Unicode string (u'String'), escape sequences(\), Operations on String (Concatenation (+), Repetition (*), Slicing ([index]), Range Slicing([start:end] or [:end] or [start:] , Member ship operator (in, not in)), String Functions : capitalize(), len(), lower(), swapcase(), upper()
Month: February 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Working with Databases: SQL Databases, NoSQL Databases	SQL or NoSQL? Python Database Frameworks, Database Management with Flask-SQLAlchemy, Model Definition, Relationships, Database Operations ,Creating the Tables, Inserting Rows, Modifying Rows, Deleting Rows, Querying Rows, Database Use in View Functions, Integration with the Python Shell.
B.Sc. III	10	4	14		
B.Sc. I				Semester Examination	
Month: March 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	User Authentication:	Authentication Extensions for Flask ,Password Security



B.Sc. III	10	16	26		,Hashing Passwords with Werkzeug ,Creating an Authentication Blueprint, User Authentication with Flask-Login, Preparing the User Model for Logins, Protecting Routes, Adding a Login Form, Signing Users In, Signing Users Out, Understanding How Flask-Login Works, Testing Logins, New User Registration, Adding a User Registration Form, Registering New Users ,Account Confirmation , Generating Confirmation Tokens with its dangerous, Sending Confirmation Emails, Account Management.
B.Sc. I	7	16	23	Unit -1 Python File Input-Output: Exception Handling Regular Expressions	Opening and closing file, Various types of file modes, reading and writing to files, manipulating directories– What is exception, Various keywords to handle exception such try, catch, except, else, finally, raise – Concept of regular expression, various types of regular expressions, using match function
Month: April 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Application Deployment, Logging of Errors During Production, Deployment	Deployment: Workflow, Cloud
B.Sc. III	10	16	26		The Heroku Platform, Preparing the Application, Testing with Heroku Local
B.Sc. I	7	16	23	Unit -2 GUI Programming in Python (using Tkinter/wxPython/Qt) -	What is GUI, Advantages of GUI, Introduction to GUIlibrary, Layout management, Events and bindings, Font, Colors, drawing on canvas (line, oval, rectangle, etc.) Widget such as : Frame, Label, Button, Checkbutton, Entry, Listbox, Message, Radiobutton, Text, Spinbox etc , Layout management, Events and bindings, Font, Colors, drawing on canvas (line, oval, rectangle, etc.) Widget such as : Frame, Label, Button, Checkbutton, Entry, Listbox, Message, Radiobutton, Text, Spinbox etc
Month: May 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Deploying with git push, Deploying an Upgrade, Docker Containers	Installing Docker, Building a Container Image, Running a Container.
B.Sc. III	10	16	26		
B.Sc. I	7	16	23	Unit -3 Database connectivity in Python	– Installing mysql connector, accessing connector module module, using connect, cursor,



					execute & close functions, reading single & multiple results of query execution, executing different types of statements, executing transactions, understanding exceptions in database connectivity
Month: June 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Final Practical Examination	
B.Sc. III	10	16	26		
B.Sc. I	7	16	23	Algorithm, Searching and Sorting –	Searching and sorting techniques, Efficiency of algorithms
Month: July 2022				Module/Unit:	Sub-units planned
	Lectures	Practicals	Total	Final Practical Examination	
B.Sc. I					
Month: August 2022				Module/Unit:	Sub-units planned
	Lectures	Practicals	Total	Final Examination	
B.Sc. III, I					


Ms. R. Y. Patil




Dr. V. B. Waghmare
Head of Department

HEAD
DEPARTMENT OF COMPUTER SCIENCE
VIVEKANAND COLLEGE, KOLHAPUR
(AUTONOMOUS)

Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science

Annual Teaching Plan

Academic Year: 2021-22

Semester: B.Sc. Sem-I,II,V,VI

Subject: Computer Science

Course Title: Introduction to JAVA
Data Science using Python
Database Management System I & II

Name of the teacher: Dr. I. K. Mujawar

Month: October 2021				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total		
B.Sc. III	7	16	23	Introduction to Java and Java Fundamentals:	History of Java , Features of Java , Comparison of Java and C++ , Java Environment, Java Tools – jdb, javap, javadoc ,Java IDE – Eclipse/NetBeans, Structure of java program, ,First java program, Types of Comments, Data types, Variables, Operators, Keywords, Naming Convention, Declaring 1D, 2D array, Decision Making (if, switch), Looping(for, while) ,Type Casting , Accepting input using Command line argument, Accepting input from console.
B.Sc. I	7	16	23	Introduction to DBMS:	Introduction of DBMS – Database, DBMS – Definition, Overview of DBMS, File processing system vs DBMS, Limitation of file processing system, Advantages of DBMS, Levels of abstraction, Data independence, DBMS Architecture, Users of DBMS, Data models - Object Based Logical Model, Record Based Logical Model (relational, hierarchical, network)
Month: November 2021				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total		
B.Sc. III	10	16	26	Object, Classes and Inheritance in Java:	Defining Your Own Classes, Access Specifiers (public, protected, private, default), Array of Objects , Constructor, Overloading Constructors and use of 'this' Keyword, static block, static Fields and methods, Object class methods, String Class, Inner class, Packages, Wrapper Classes , Garbage Collection, Memory allocation for objects, Constructor, Implementation of Inheritance, use of super keyword, Implementation of Polymorphism, Method Overloading, Method Overriding, Nested and Inner classes, Use of final keyword related to method and class, abstract class and abstract methods, Defining and Implementing Interfaces, Object Cloning
B.Sc. I	7	16	23	Entity Relationship Model -	Entities, attributes, entity sets, relations, relationship sets, Additional constraints (key constraints, participation constraints,



					weak entities, aggregation / generalization, Conceptual Design using ER (entities VS attributes, Entity Vs relationship, binary Vs ternary, constraints beyond ER), Entity Relationship Diagram (ERD)
Month: December 2021				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Exception Handling, GUI components using AWT and Swing and Applets:	Exception types, Using try catch and multiple catch, Nested try, throw, throws and finally, Creating User defined Exceptions, Assertions, Basics of AWT and Swing, their Difference, Layout Manager, Layouts, Components: JButton, JLabel, JText, JTextArea, JCheckBox and JRadioButton, JList, JComboBox, JMenu and JPopupMenu Class, JMenuItem and JCheckBoxMenuItem, JRadioButtonMenuItem, JScrollBar, Dialogs (Message, confirmation, input), JFileChooser, JColorChooser, Event Handling: Event sources, Listeners Mouse and Keyboard Event Handling, Adapters, Applet Life Cycle , appletviewer tool, Applet HTML Tags, Passing parameters to Applet , repaint() and update() method
B.Sc. III	12	16	28		
Month: January 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Semester Examination	
B.Sc. I	7	16	23	MySQL - DDL Statements DML Statements --	- Creating Databases, Using Databases, MySQL datatypes, Creating Tables (with integrity constraints – primary key, default, check, not null), Altering Tables, Renaming Tables, Dropping Tables, Truncating Tables, Backing Up and Restoring databases Viewing the structure of a table insert, update, delete, Select – all columns, specific columns, unique records, conditional select, in clause, between clause, limit, aggregate functions (count, min, max, avg, sum), group by clause, having clause.
B.Sc. III					
Month: February 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Introduction to Data Science:	
B.Sc. I	7	16	23	Functions – String Functions	(concat, instr, left, right, mid, length, lcase/lower, ucase/upper, replace, strempr, trim, ltrim, rtrim), Math Functions (abs, ceil, floor, mod, pow, sqrt, round, truncate) Date Functions (adddate, datediff, day, month, year, hour, min, sec, now, reverse) DCL Statements (creating/dropping users, privileges introduction, granting/revoking privileges, viewing privileges)



B.Sc. III	10	4	14		Definition, Big Data and Data Science hype, Getting past the hype, Datafication, History and Current landscape of perspectives, Drew Conway's Venn diagram of data science, Roles and Skill sets of the Data Scientist in Data Science.
B.Sc. I				Semester Examination	
Month: March 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Statistical Inference:	Populations and samples of Big Data, Statistical Modeling, Probability Distributions, Fitting a Model. Introduction to Data Structures, Exploratory Data Analysis (EDA): The Data Science Process, Basic tools (plots, graphs and summary statistics) of EDA, Case Study: RealDirect (online real estate firm).
B.Sc. III	10	16	26		
B.Sc. I	7	16	23	Relational data model- ER to The Relational Model	Domains, attributes, Tuples and Relations, Relational Model Notation, Characteristics of Relations, Relational Constraints - primary key, referential integrity, unique constraint, Null constraint, Check constraint Entity to Table, Relationship to tables with and without key constraints
Month: April 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Introduction to Machine Learning:	Interpreting parameters, Confidence intervals, The role of explicit assumptions, Three basic Algorithms - Linear Regression: Fitting the model, Extending beyond least squares, Adding in modeling assumptions about the errors, Evaluation metrics(R-squared, p-values, Cross-validation), Transformations. k-Nearest Neighbors (k-NN): distance metrics(Cosine Similarity, Jaccard Distance, Mahalanobis Distance, Hamming Distance, Manhattan), Training and test sets, Choosing k, Binary Classes, Test Set in k-NN, modeling assumptions. k-means: Hierarchical modeling, 2D version, unsupervised learning.
B.Sc. III	10	16	26		
B.Sc. I	7	16	23	Introduction to Functional Dependencies and Normalization - Relational Algebra	1NF, 2NF, 3NF operations (selection, projection, set operations union, intersection, difference, cross product joins - conditional, equi join and natural joins, division)
Month: May 2022				Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	Advances in Data Science: Recommendation Systems:	Spam Filters, Naive Bayes, Bayes Law, Comparison between Naive Bayes to k-NN. Data Wrangling: APIs and other tools for scrapping the Web. Feature Selection (Extracting Meaning from Data), Feature Generation: (brainstorming,
B.Sc. III	10	16	26		



Month: July 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Final Examination	
B.Sc. III				
Month: May 2020			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Final Examination and Final Exam	
B.Sc. I				

I. K. Mujawar

Dr. I. K. Mujawar

V. B. Waghmare

Dr. V. B. Waghmare
 Head of Department
 Dept. of Computer Science
 Jivekanand College, Kolhapur



Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science

Annual Teaching Plan

Academic Year: 2021-22

Semester: B.Sc. Sem-III & IV

Subject: Computer Science

Course Title: OOP and Data Structure using Python

Name of the teacher: Ms. S. Z. Mullani

Month: October 2021			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit-1 Introduction to Object Oriented Programming	Programming Paradigms, What Is Object-Oriented Programming?, Features of OOP, Advantages and disadvantage of OOP, Function Overloading, Operator Overloading, Static and Dynamic Binding, Constructors and Destructors, Techniques of Object-Oriented Programming, When to use OOP?, Applications of OOP.
7	4	11		
Month: November 2021			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit-2 Classes and Objects	Python Classes, Objects, Specifying attributes and behaviors, instance methods, instance attributes, static methods constructor, types of constructors (default, parameterized), class methods as alternative constructor, constructor overloading , method overloading.
10	4	14		
Month: September 2021			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit-3 Inheritance and Polymorphism	Inheritance in Python (Syntax, Advantages,)Access Modifiers in Python, Types of Inheritance (single, multiple, multilevel, hierarchical and hybrid)
13	4	17		
Month: December 2021			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Polymorphism-Method.	Overriding, magic methods and Operator Overloading
10	4	14		
Month: January 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Semester Examination	
Month: February 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit-1 Abstract Data Type Introduction: Abstractions, Abstract Data Types, Data Structures, General Definitions; Application: Student Records, Designing a Solution, Implementation	The Date Abstract Data Type: Defining the ADT, Using the ADT, Preconditions and Postconditions, Implementing the ADT; Bags: The Bag Abstract Data Type, Selecting a Data Structure, List-Based Implementation; Iterates: Designing an Iterator, Using Iterators;
7	4	11		
Month: March 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Algorithm Analysis: Complexity Analysis: Big-O Notation, Evaluating Python Code; Evaluating the Python List; Amortized Cost; Application: The Sparse Matrix, List-Based Implementation, Efficiency Analysis	Unit-2 Linked Structure The singly Linked List: Traversing the node, Searching for a node, Prepending Nodes, Removing Nodes ;The Bag ADT Revisited:A linked List Implementation, Comparing Implementations, Linked list iterators; More Ways to Build a Linked List:Using a Tail Reference,
8	4	12		



				The sorted linked list; The Sparse Matrix Revisited : An array of Lined list implementation, Comparing the Implementations;
Month: April 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Applications : Polynomials, Polynomial Operations, The Polynomial ADT, Implementation. Advanced Linked List:	The Doubly Linked List: Organization, List Operations ; Circular Linked List: Organization, List Operation Multi-Linked Lists; Multiple Chains, The sparse Matrix ; Complex Iterators ; Application: Text Editor, Typical Editor Operations, The EDIT Buffer ADT, Implementation
4	4	8		
Month: May 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit-3 Stacks The Stack ADT: Implementing the stack, using a python list, using a linked list, Stack Applications: Balanced Delimiters, Evaluating Postfix Expression; Applications: Solving a Maze: Backtracking, Designing a solution, The Maze ADT, Implementation	Queues The Queue ADT; Implementing the Queue:Using a Python List, Using a Circular Array, Using a Linked List Priority Queues: The priority Queue ADT, Implementation: Unbounded Priority Queue, Implementation :Bounded Priority Queue ; Application : Computer Simulation : Airline Ticket Counter, Implementation
4	4	8		
Month: June 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Final Practical Examination	
Month: July 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Final Examination	


Ms. S. Z. Mullani




Dr. V. B. Waghmare
Head of Department

HEAD
DEPARTMENT OF COMPUTER SCIENCE
VIVEKANAND COLLEGE, KOLHAPUR
(AUTONOMOUS)