Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science

Annual Teaching Plan

Academic Year: 2020-21 **Semester:** B.Sc. Sem-III,IV,V,VI

Subject: Computer Science **Course Title:** Software Engineering & Object Oriented SE Operating System and Linux

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

	Month: July 2020			Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	**Introduction to System Analysis: Software Engineering Concepts:**	Definition of system, elements and characteristics of system, Types of system Requirement analysis, System Design, Object Design, Participants and roles: System analyst, Characteristics of software, System Development Life Cycle (SDLC), Classical model, Water fall model, Feasibility study, Fact finding technique.
B.Sc. III	7	16	23		
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: August 2020			**Module/Unit:**	**Sub-units planned**
Course	Lectures	Practicals	Total	**Software Engineering: Software Project Management: Quality Management:**	Definition, Modelling, Problem Solving, Knowledge acquisition, Rationale Driven. Estimation in Project Planning Process, Project Scheduling. Quality Concepts, Software Qualities, Software Quality Assurance, Software Reviews, Metrics for Process and Projects.
B.Sc. III	10	16	26		
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: September 2020			**Module/Unit:**	**Sub-units planned**
Course	Lectures	Practicals	Total	**Risk Management: Software Testing:**	Software Risks, Risk Identification, Risk Projection

B.Sc. III	12	16	28	**Case studies:** College Admission system, Library system, Bank management System.	and Risk Refinement. White Box Testing, Black Box Testing, Alpha Testing, Beta Testing, Change Over.
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: October 2020			**Module/Unit:**	**Sub-units planned**
Course	**Lectures**	**Practicals**	**Total**	**Semester Examination**	
B.Sc. III					
B.Sc. II	7	16	23	**Introduction to Linux** Linux History and architecture of Linux system, Shell, Types of Shell's, Kernel, Kernel shell relationship, Login, Logout, Remote login	GPU(General Purpose Utilities) clear, script, cal, who, bc, wc, head, tail, inodes, structure of regular file, file manipulation commands, change file access permissions with chmod command, directories, directory management commands- cd, mkdir, rmdir. Simple filters- cut, paste, sort, tr, Advanced filters-sed, grep, gawk
	Month: November 2020			**Module/Unit:**	**Sub-units planned**
Course	**Lectures**	**Practicals**	**Total**	**Introduction to OOAD: Introduction to UML:**	Object Oriented Concepts and Modelling: Introduction to class, Object, inheritance, polymorphism, Aggregation and Composition. Overview, Conceptual Model of UML, UML architecture.
B.Sc. III	10	4	14		
B.Sc. II				**Semester Examination**	
	Month: December 2020			**Module/Unit:**	**Sub-units planned**
Course	**Lectures**	**Practicals**	**Total**	**Unified Process Model Static Modelling Notation:**	Views, UML Diagrams: Class diagrams, Object diagrams, Statechart diagram. Package Diagrams, Composite Structures, Component Diagrams, Deployment Diagrams
B.Sc. III	10	16	26		
B.Sc. II	7	16	23	**Memory Management Main Memory**-Swapping, Contiguous Memory Allocation, Paging, Structure of the Page Table, Segmentation, Example: The Intel Pentium,	**Virtual Memory**-Demand Paging, Copy-on-Write, Page Replacement (FIFO, Optimal, LRU, MFU,LFU), Allocation of Frames, Thrashing, Memory-Mapped Files
	Month: January 2021			**Module/Unit:**	**Sub-units planned**
Course	**Lectures**	**Practicals**	**Total**	**Dynamic Modelling Notation: Mapping Object Model to Database Schema:**	Use Case Diagrams, Activity Diagrams, Interaction Diagrams System Design process, Partitioning the analysis model, Concurrency and subsystem allocation, Task, Data and Resource management.
B.Sc. III	10	16	26		
B.Sc. II	7	16	23	**Storage Management**	File-System Interface-File Concept, Access Methods, Directory Structure , File-

					System Mounting , File Sharing , Protection,
	Month: February 2021			**Module/Unit:**	**Sub-units planned**
Course	**Lectures**	**Practicals**	**Total**	**Object Oriented Design: Object Oriented Analysis:**	Iterative Development, Unified process & UP Phases: Inception, Elaboration, Construction and Transition.
B.Sc. III	10	16	26		
B.Sc. II	7	16	23	File-System Structure, File-System Implementation, Directory Implementation, Allocation Methods, Free-Space Management,	Efficiency and Performance, I/O Systems-I/O Hardware, Application I/O Interface, Kernel I/O Subsystem
	Month: March 2021			**Module/Unit:**	**Sub-units planned**
Course	**Lectures**	**Practicals**	**Total**	**Object Oriented Testing:**	Types of Testing, Object oriented Testing strategies, Test case design for OO software
B.Sc. III	10	16	26		
B.Sc. II	7	16	23	**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: April 2021			**Module/Unit:**	**Sub-units planned**
	Lectures	**Practicals**	**Total**	**Final Practical Examination**	
	Month: May 2021			**Module/Unit:**	**Sub-units planned**
	Lectures	**Practicals**	**Total**	**Final Examination**	

Dr. V. B. Waghmare

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR

Dr. V. B. Waghmare
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Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science

Annual Teaching Plan

Academic Year: 2020-21 **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: July 2020			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 virualenv (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: August 2020			**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: September 2020			**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: October 2020			**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: November 2020			**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-SQL Alchemy, 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: December 2020			**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: January 2021			**Module/Unit:**	**Sub-units planned**
Course	**Lectures**	**Practicals**	**Total**	**Application Deployment: Deployment Workflow, Logging of Errors During Production, Cloud Deployment**	The Heroku Platform, Preparing the Application, Testing with Heroku Local
B.Sc. III	10	16	26		
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: February 2021			**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: March 2021			**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: April 2021			**Module/Unit:**	**Sub-units planned**
	Lectures	**Practicals**	**Total**	**Final Practical Examination**	
B.Sc. I					
	Month: May 2021			**Module/Unit:**	**Sub-units planned**
	Lectures	**Practicals**	**Total**	**Final Examination**	
B.Sc. III, I					

Ms. R. Y. Patil

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Annual Teaching Plan

Academic Year: 2020-21 **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: Mr. I. K. Mujawar

	Month: July 2020			Module/Unit:	Sub-units planned
Course	Lectures	Practicals	Total	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. III	7	16	23		
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: August 2020			**Module/Unit:**	**Sub-units planned**
Course	Lectures	Practicals	Total	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. III	10	16	26		
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: September 2020			**Module/Unit:**	**Sub-units planned**
Course	Lectures	Practicals	Total	Exception Handling, GUI components	Exception types, Using try catch and multiple catch, Nested try, throw, throws and finally, Creating User defined Exceptions, Assertions, Basics of AWT and

B.Sc. III	12	16	28	using AWT and Swing and Applets:	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. 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.
	Month: October 2020			**Module/Unit:**	**Sub-units planned**
Course	**Lectures**	**Practicals**	**Total**	**Semester Examination**	
B.Sc. III					
B.Sc. I	7	16	23	**Functions – String Functions**	(concat, instr, left, right, mid, length, lcase/lower, ucase/upper, replace, strcmp, 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)
	Month: November 2020			**Module/Unit:**	**Sub-units planned**
Course	**Lectures**	**Practicals**	**Total**	**Introduction to Data Science:**	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. III	10	4	14		
B.Sc. I				**Semester Examination**	
	Month: December 2020			**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: January 2021			**Module/Unit:**	**Sub-units planned**
Course	**Lectures**	**Practicals**	**Total**		Interpreting parameters, Confidence intervals, The role of explicit assumptions, Three basic Algorithms

B.Sc. III	10	16	26	**Introduction to Machine Learning:**	- 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. 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: February 2021			**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, role of domain expertise and place for imagination), Feature Selection algorithms: (Filters, Wrappers, Decision Trees, Random Forests). Problems with Nearest Neighbors, Sensitivity of distance metrics, The Dimensionality Problem, Singular Value Decomposition (SVD), Properties of SVD, Dimensionality Reduction, Singular Value Decomposition, Principal Component Analysis (PCA).
B.Sc. III	10	16	26		
B.Sc. I	7	16	23	**MySQL Joining Tables – Subqueries –**	inner join, outer join (left outer, right outer, full outer) sub queries with IN, EXISTS, sub queries restrictions, Nested sub queries, ANY/ALL clause, correlated sub queries
	Month: March 2021			**Module/Unit:**	**Sub-units planned**
Course	**Lectures**	**Practicals**	**Total**	**Final Practical Examination**	
B.Sc. III	10	16	26		
B.Sc. I	7	16	23	**Database Protection: MySQL –**	Security Issues, Threats to Databases, Security Mechanisms, Role of DBA, Discretionary Access Control Stored functions, procedures, cursor, trigger, views (creating, altering dropping, renaming and manipulating views)
	Month: April 2021			**Module/Unit:**	**Sub-units planned**
	Lectures	**Practicals**	**Total**	**Final Practical Examination**	
B.Sc. I					
	Month: May 2021			**Module/Unit:**	**Sub-units planned**
	Lectures	**Practicals**	**Total**	**Final Examination**	
B.Sc. III, I					

Mr. I. K. Mujawar

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR

Dr. V. B. Waghmare
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Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science

Annual Teaching Plan

Academic Year: 2020-21 **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: July 2020			**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: August 2020			**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 2020			**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: October 2020			**Module/Unit:**	**Sub-units planned**
Lectures	**Practicals**	**Total**	**Polymorphism-Method.**	Overriding, magic methods and Operator Overloading
10	4	14		
Month: November 2020			**Module/Unit:**	**Sub-units planned**
Lectures	**Practicals**	**Total**	**Semester Examination**	
Month: December 2020			**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: January 2021			**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		

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR

				The sorted linked list; **The Sparse Matrix Revisited** : An array of Lined list implementation, Comparing the Implementations;
Month: February 2021			**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: March 2021			**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: April 2021			**Module/Unit:**	**Sub-units planned**
Lectures	**Practicals**	**Total**	**Final Practical Examination**	
Month: May 2021			**Module/Unit:**	**Sub-units planned**
Lectures	**Practicals**	**Total**	**Final Examination**	

Ms. S. Z. Mullani

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR

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: 2020-21 **Semester:** B.Sc. Sem-V & VI

Subject: Computer Science **Course Title:** Computer Network & Advanced CN

Name of the teacher: Ms. J. A. Chavan

<table>
<tr><td colspan="3">Month: July 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Basic concepts:</td><td rowspan="2">Components of data communication, standards and organizations, Network Classification, Network Topologies; network protocol; layered network architecture; overview of OSI reference model; overview of TCP/IP protocol suite. Network Security: Common Terms, Firewalls, Virtual Private Networks</td></tr>
<tr><td>10</td><td>4</td><td>14</td></tr>
<tr><td colspan="3">Month: August 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">ISO/OSI Model:</td><td rowspan="2">Physical Layer: Cabling, Network Interface Card, Transmission Media Devices- Repeater, Hub, Bridge, Switch, Router, Gateway. Data Link Layer: Framing techniques; Error Control; Flow Control Protocols; Shared media protocols - CSMA/CD and CSMA/CA. Network Layer: Virtual Circuits and Datagram approach, IP addressing methods – Subnetting; Routing Algorithms (adaptive and non-adaptive)
Transport Layer: Transport services, Transport Layer protocol of TCP and UDP Application Layer: Application layer protocols and services – Domain name system, HTTP, WWW, telnet, FTP, SMTP.</td></tr>
<tr><td>10</td><td>4</td><td>14</td></tr>
<tr><td colspan="3">Month: September 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Introduction to Linux Server Administration: configuring, compiling, Linux Kernel.</td><td rowspan="2">Technical Summary of Linux Distributions, Managing Software Single-Host Administration: Managing Users and Groups, Booting and shutting down processes, File Systems, Core System Services, Process of</td></tr>
<tr><td>13</td><td>4</td><td>17</td></tr>
<tr><td colspan="3">Month: October 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Semester Examination</td><td rowspan="2"></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td colspan="3">Month: November 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td>Networking and Security:</td><td>TCP/IP for System Administrators, basic network Configuration, Linux</td></tr>
</table>

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<table>
<tr><td></td><td></td><td></td><td>packet switching, Relation between packet size & transmission time. Comparison of switching techniques,</td><td></td></tr>
<tr><td colspan="3">Month: January 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit-3 File Sharing and Security:
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</td><td rowspan="2">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.</td></tr>
<tr><td>8</td><td>4</td><td>12</td></tr>
<tr><td colspan="3">Month: February 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Unit-4 Managing Group Policy
Managing Group: Understanding group, By default Group, Creating Group, Adding Member To Group, Delete Group, Modifying Group. Understanding Group Policy: Local & Active Directory Group Policy</td><td rowspan="2">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. Group Policy</td></tr>
<tr><td>4</td><td>4</td><td>8</td></tr>
<tr><td colspan="3">Month: March 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Inheritance, Overriding inheritance, Blocking inheritance, Enforcing inheritance, Filtering group inheritance</td><td rowspan="2"></td></tr>
<tr><td>4</td><td>4</td><td>8</td></tr>
<tr><td colspan="3">Month: April 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Final Practical Examination</td><td rowspan="2"></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td colspan="3">Month: May 2020</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Final Examination</td><td rowspan="2"></td></tr>
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Ms. J. A. Chavan

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Dr. V. B. Waghmare
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