ADSP Mandal's

Mahavir Mahavidyalaya, Kolhapur

Department of Computer Science

B.Sc- II

Course Title:DSC H6 Object Oriented Programming Using C++ (Sem-III)

Course Teacher: Prof. Sayali Kalantre
Teaching Plan 2024-25

Month	Theory Component	Practical CIE Component
July	**Admission process**	
August	**Module I** **Introduction to C++ and Object Oriented Programming** 1.1 Some Concepts: Procedure Oriented programming versus Object oriented programming, Benefits of C++ over C languge 1.2 Object oriented programming Concepts: Object, class, Encapsulation, Abstraction, Polymorphism, Inheritance. 1.3 Basics of C++ :Terminology-Tokens, Keywords, Identifiers, constants, Basic data types, Variables : Definition, Declaration, Initialization, Dynamic Initialization and reference variables Structure of C++ program, Input and output streams. 1.4 Operators in C++: Dynamic Memory allocation (New and Delete), scope resolution operator, manipulators (setw, endl, setprecision). 1.5 Functions: Prototyping, Function Call, default arguments, const arguments, inline	1. Program based on basic concept of C++. 2. Program based on concept of Dynamic Memory Allocation Operator. 3. Program based on concept of function with default arguments. 4. Program based on concept of inline function
September	1.6 Classes and objects : Definitions, class declaration, Access modifiers : private, public and protected, Member function, Defining member functions (Inside and outside the class), object definition, Array of objects, passing object as parameter, static members (data members and member accessing function) 1.7 Constructors: Definition, types- Default	5. Program based on concept of C++ class and objects. 6. Program based on concept of Array of object.

	constructor, Copy constructor, Parameterized constructor, Destructors. 1.8 Friend function and friend class.	7. Program based on concept of static data member and static function. 8. Program based on concept of constructor and destructor.
October	**Module II** **Inheritance and Polymorphism** 2.1 Inheritance: Introduction, Defining base and derived class. Types of Inheritance (single, multilevel, multiple, hierarchical, hybrid), Introducing protected members, virtual base class 2.2 Polymorphism: Definition, Types of polymorphism. 2.3 Function Overloading 2.4 Operator overloading: Concept, Rules, definition of operator function, Overloading unary and binary operators. 2.5 Virtual and pure-virtual functions (abstract class),rules for virtual functions	9. Program based on concept of friend function and friend class. 10. Program based on concept of Inheritance. 11. Program based on concept of Function Overloading. 12. Program based on concept of Operator Overloading. 13. Program based on concept of Pure virtual function.
Course Title:DSC H8 Data Structure Using C++ **(Sem-IV)**		
November	**ESE Related Work**	
December	**Module I** **Introduction to Data Structure and Array** 1.1 Concept of Data, Data Object, Types of Data- Atomic Data, Non-atomic Data 1.2 Concept of Data Structure 1.3 Abstract data type (ADT) 1.4 Array : Definition, Array Operations, Types of Array, Applications of Array(Polynomial evaluation and addition of two polynomials)	
January	1.5Algorithm Analysis : Space complexity, time complexity, Asymptotic notation (Big O, Omega Ω, Theta Θ) 1.6 Searching: Linear and Binary Search 1.7 Sorting : Bubble sort, Selection sort,	1. Program to implement polynomial for given value. 2. Program to implement searching technics (Linear

	Insertion sort, Quick sort	and Binary).
February	**Module II** **Linear and Non Linear Data Structure** 2.1 Stack : Concept of Stack, Operations on Stack(push, pop, peek ,isfull, isempty), implementation of Stack using array, Applications of Stack- Recursion, Infix, Prefix, Postfix, conversion from Infix to Prefix and Infix to Postfix 2.2 Queue : Concepts of queue, Operations on Queue (Enqueue, Dequeue, Peek, Isfull, Isempty), Implementation of queue using array, Types of Queue (Linear, Circular and Priority), Applications of Queue.	3. Program to implement sorting techniques(Bubble sort, Insertion sort, Quick sort, Selection sort) 4.Program to implementation and Operation on stack 5. Program to implementation and Operation on Queue. 6. Program to implementation and Operation on Circular Queue.
March	2.3 Linked List : Concept of linked list, Types of Linked List (Singly-Doubly, Linear-Circular),Implementation of Linked list, Operations on linked list (Insertion, Deletion, Display, Search) 2.4 Trees: Definition, Terminologies (Root, Child, Parent, Siblings, Descendant, Ancestor, Leaf/External node, Branch node/Internal node, Degree, Edge, Path, Level, Depth, Height of node, Height of tree, Forest) Binary Tree: Definition, Types (Full/Proper/Plane, Complete, Perfect, Skewed, Balanced),Binary Search Tree.	7. Program to implementation and Operation on Priority Queue. 8. Program to implementation and Operation on Linear Linked List. 9. Program to implementation and Operation on Circular Queue. 10.Program to implementation on Tree
April	**Exam Related Work**	

ADSP Mandal's

Mahavir Mahavidyalaya, Kolhapur

Department of Computer Science

B. Sc.- III

Course Title: DSC H11 fundamentals of Networking (Sem-V)

Course Teacher: Prof. R. R. Mestri.
Teaching Plan 2023-24

Month	Theory Component	Practical CIE Component
July	**Admission process**	
August	**Module I** **Basic concepts of networking** 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. **ISO/OSI Model:** Physical Layer: Cabling, Network Interface Card, Transmission Media Devices- Repeater, Hub, Bridge, Switch, Router, Gateway.	Study of different types of Network cables and practically implement the cross wired cable and straight through cable using clamping tool.
September	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.	Study of Network Devices in Detail (Switch, Hub, Router etc.) Study of Network IP. Connect the computers in Local Area Network. Practical based on basic network commands and Network configuration.

October	**Introduction to Linux networking tools** 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 configuring, compiling, Linux Kernel. Introduction to TCP/IP, Network Management Tools- Firewall, The write command, The wall command	Practical based on network topology. Practical based on printer sharing configuration in workgroup. Practical based on antivirus installation and update.
November	**ESE Related Work**	
Course Title: DSC H15 Cyber Security Essential-1 (Sem-VI)		
December	**Module I** • **Information Security Management** Information Security Overview: Background and Current Scenario, Types of Attacks, DoS attack, Goals for Security, E-commerce Security, dimensions of E-commerce security, Security protocols, Computer Forensics, Steganography. Security Management- Overview of Security Management, Information Classification Process,	Practical based on backup and restore system. Practical based on use access permission. Practical based on operating system security and application.(set password etc.)
January	Security Policy, Risk Management, Security Procedures and Guidelines, Business Continuity and Disaster Recovery, Ethics and Best Practices. **Module II** • **Network Security, Access Controls,**	Practical based on wireless mode(change admin password, MAC addressing, bluetooth)

	Cyber Security and Cyber Laws **Wireless Network Security**- Components of wireless networks, Security issues in wireless, Wi-Fi Security, Risk of Using Unsecured Wi-Fi, Bluetooth and its security, Firewall, types of firewall.	Practical based on email security Practical based on web security
February	. **Access Controls**: Overview of Authentication and Authorization, Overview of Intrusion , Detection Systems, Intrusion Detection Systems and Intrusion Prevention Systems. **Cyber Security**: Email security: PGP and SMIME, Web Security: web authentication, SSL and SET, Database Security.	Practical based on browser security. Practical based on database security.
March	**Cyber Security Laws:** Security Assurance, Security Laws, Intellectual Property Rights, International Standards, Security Audit- Need, Importance.	
April	**Exam Related Work**	

ADSP Mandal's

Mahavir Mahavidyalaya, Kolhapur

Department of Computer Science

B. Sc.- II

Course Title: DSC H5 Web Programming (Sem-III)

Course Teacher: Prof. R. R. Mestri.
Teaching Plan 2023-24

Month	Theory Component	Practical CIE Component
July	**Admission process**	
August	**Module I** **Introduction to HTML and CSS** 1.1 Html Basic- Heading, formatting, paragraph, Comments 1.3 HTML tags and attributes-HTML fonts, color, table, list 1.4 HTML form elements-input tag, layout. 1.5 HTML5 attributes, events, canvas, audio and video.	
September	1.6 Introduction of CSS, advantages and limitation of CSS, syntax 1.7 types of CSS, CSS properties **Module II** **Introduction to PHP** 2.1 Introduction: Evaluation, Features, PHP Script (PHP tags <?php... ?>, echo command, PHP script execution on terminal and web browser. **2.2 Variables**: Basics, Data types(Boolean, Integers, Floating points Doubles, Strings, NULL, Arrays, Resources), Variable naming rules, scope(Local, Global, static, function parameter), unset variable	Program based on Html text formatting tag. Program based on Html List, Table tag Program based on HTML5 Tag (Audio, video, canvas) Program based on HTML and HTML5 form Tag Program based on CSS and CSS Types

October	**Functions**-(gettype(), isset(), is_array(), is_bool(), is_float(), is_int(), is_null(), is_string(), is_resource()) 2.3 **Constant**: define() function to define constant, constant() to retrieve value of constant, difference between constant and variable, PHP predefined constants 2.4 **Operators**: Arithmetic, Comparison, Relational, Assignment, Increment-Decrement, Ternary, Bitwise, Casting, Other operators (., $, @, {}, ``, =>) 2.5 **Strings**: Single Quoted and Double Quoted, escape sequences, Multiline String, Concatenation operator(.), string functions(chr(), strlen(), ltrim(), rtrim(), trim(), strtoupper(), strtolower(), strcmp(), substr(), strrev(), echo(), print(), printf()) 2.6 **Decision Making Statements**: if, if... else, if ... elseif...else, switch statement **Iterative Statements**: for, while, do... while, foreach, break and continue statement 2.7 **Exit statements**: exit, die	Program based on Operators Program based on Decision Making Statements Program based on iterative statement
November	**ESE Related Work**	
Course Title: DSC H7 PHP and MySql (Sem-IV)		
December	**Module I** **Php Array and Function** 1.1 User Defined Functions: Declaring functions, function arguments(by val, by ref, default arguments, variable number of arguments),return statement(by val, by ref), recursion, global scope, static variables, Dynamic Function call 1.2 Arrays: Concept, Types(Numerical/List, Associative/Maps, Multi-Dimensional), empty array, Initialization of arrays([] operator,	Program based on Array Program based on String. Program based on function

	array() function, range() function), inserting element in array, Display entire array(print_r(), var_dump())	
January	1.3 Forms get & post methods. PHP super global variables ($_PHP_SELF, $_GET, $_POST, $_SERVER, $_COOKIES, $_REQUEST) 1.4 Session and Session variables 1.5 Form Validation	Program based on validation function Program based on get method, post method. Program based on session, cookies
February	**Module II** **MySql Connectivity** . 2.1 Connect, Close, Select a database 2.2 execute MySQL query. 2.3 create cursor, Fetch rows from tables as row as numeric as well as associative array	Program based on connect MySql database. Program based on manipulate data in a table using php.
March	2.4 cursor ,release memory of cursor(mysql_free_result() mysqli_free_result()) 2.5 Data backup and restore.	Program based on display content of table using php
April	**Exam Related Work**	

ADSP Mandal's

Mahavir Mahavidyalaya, Kolhapur

Department of Computer science

B.Sc- I

Course Title: Problem Solving Using Computers (Sem-I)

Course Teacher: Prof. Sayali R Deshmukh
Teaching Plan 2024-25

Month	Theory Component	Practical CIE Component
July 2024	**Admission process**	
August 2024	**Module I : Problem Solving UsingComputers** 1.1 Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming,Documentation 1.2 Program Design Tools:Algorithm, flow chart, Pseudo code. 1.3 Introduction to Linux Operating System and C Language, Introduction to Vi, Introduction to GCC Compiler, Components of Compilation Process.	
September	1.4 Introduction to C Language **:**History**,** Features**,** Structure Of C program**,** Installation of C 1.5 Variable Declaration 1.6 Operators 1.7 Debugging and compilation 1.8 Execution of Program	**Practical based on linux operating system**
October	**Module II : Control Structures, Array and String** 2.1 Conditional Branching Statements: Simple if statement, If… else statement, else…if ladder, Nested if…else statement, Switch statement 2.2 Looping Statements: While loop, do...while loop, for loop, nested loop 2.3 Arrays: Introduction, Features ,Definition, Declaration and Initialisation of an Array, Types of Arrays : One Dimensional, Two Dimensional, Multi Dimensional 2.5 String: Introduction, Features ,Definition, Declaration&Initializing a String , String function :	**PRACTICAL BASED ON ARRAY USING STRING**

	strlen(), strcpy(), strcat(), strcmp(), strrev()	
Course Title: Programming Skills Using 'C' (Sem-II)		
November	**ESE Related Work**	
December	**Module I : Functions& Pointers** 1.1Function : Introduction, Definition, Types of Function, Declaration and defining function, Calling Function (Call by Value & Call by Reference), return statement, Recursion	
January	1.2 Storage classes 1.3Pointers : Introduction, Declaration, Initialization, Pointer Arithmetic, Arrays and Pointers, Function and Pointers Advantages of Pointer	**PRACTICAL BASED ON POINTER**
February	**Module II : Structure and File Handling** 2.1Structure : Introduction, definition, Declaration, Structure Variables, Accessing Structure Members, Structure initialization, Nested Structure, Array of structure 2.2 Dynamic Memory Allocation: Introduction, Definition, functions of dynamic memory allocation	**PRACTICAL BASED ON FILE HANDLING**
March	2.3 File Handling: Defining and opening a file**,** File opening modes- read, write, append**,** closing a file. Input/Output Operations on file: getc(), putc(), getw(), putw(), fprintf(), fscanf(), ftell(), fseek(), rewind()	
April	**Exam Related Work**	

ADSP Mandal's

Mahavir Mahavidyalaya, Kolhapur

Department of Computer Science

B.Sc- I

Course Title:DSC H2 Data Base Management System (Sem-I)

Course Teacher: Prof. G.S. Chavan
Teaching Plan 2023-24

Month	Theory Component	Practical CIE Component
July	**Admission process**	
August	**Module I : Introduction to Database Management Systems** 1.1 DBMS – Definition, Characteristics, need of DBMS, Advantages of DBMS, Characteristics of database approach, DBMS Architecture 1.2 Data Models **:** Hierarchical**,** Network**,** Relational 1.3 Schema and Instances 1.4 DBMS architecture: Three Schema Architecture, Internal, Conceptual, External 1.5 Data independence: Logical, Physical	
September	**Module II : Entity Relationship and Enhanced ER Model** 2.1 ER Model ,Components of ER Model : Entities , attributes(Type of attributes), Domain ,Tuples , relationship, Notations of ER Model Relationships: one-one, one-many, many-one, many-many 2.2 Construction of EER model 2.3 SQL Concepts	Practical based on DML, DDL, DQL Commands
October	2.4 Constraints: Domain Integrity, Entity, Referential, And Concept of Object modelling 2.5SQL Statements : DDL Statements (create, alter, drop), DML Statements (insert, update, delete), DQL Statements (select) 2.6 SQL Operators : Logical, Relational, in,	1.Practical Based on Use of Operators. 2.Practical Based on SQL Clauses

	between, like, not, is null 2.7 SQL Clauses: Where, Order by, Group by , Having 2.8 Aggregate Functions :SUM, MAX, MIN, COUNT,AVG	3.Practical Based on Aggregate Functions
Course Title: DSC H4 Relational Data Base Management System (Sem-II)		
November	**Exam Related Work**	
December	**Module I : Introduction to RDBMS& ER to Relational Model** 1.1 Introduction : Definition, Difference Between DBMS And RDBMS, Data Types 1.2 Relational constraint: not null, unique, primary, foreign, check 1.3 Relational algebra: Select, Project, Union, Intersection 1.4 EER to relational mapping: Concept of Extended Entity Relationship Diagram (EER), Specialization, Generalization, Aggregation	
January	1.5 Functional dependencies: Primary Key, Super Key, Candidate Key, Functional Decomposition. 1.6 Normalization: First NF (1NF), Second NF (2NF), Third NF (3NF), and Boyce- Codd NF (BCNF). **Module II : MySQL** 2.1 MySQL Database : Create, Select, Show, Drop 2.2MySQL Joins : Self Join, Inner join, Outer Join(Left Outer, Right Outer, Full Outer)	. 1.Practical Based on use of Constraints 2.Practical based on Joins.
February	2.3 MySQL Sub-Queries : Syntax, subquery with(Comparison Operators, In, Not In ,from Clause, EXIST, Non-EXIST,All,Any,Some), Co-related Subqueries 2.4 MySQL Views: Create View, Update View, Drop View, Rename View 2.5 MySQL Indexes : Create Index, Drop	1.Practical based on Sub-queries. 2.Practical based on Views.

	Index, Show Index, Unique Index, Clustered Index 2.6 MySQL Cursor : Declare Cursor, Open Cursor, Fetch Cursor, Close Cursor	3.Practical based on Index. 4.Practical based on cursor
March	2.5 MySQL Trigger : Create Trigger, Show Trigger, Drop Trigger, Types of Trigger	1.Practical based on trigger.
April	**Exam Related Work**	

ADSP Mandal's

Mahavir Mahavidyalaya, Kolhapur

Department of Computer Science

B.Sc- III

Course Title: DSC H9 Core Java (Sem-V)

Course Teacher: Prof. Sayali Kalantre
Teaching Plan 2024-25

Month	Theory Component	Practical CIE Component
July	**Admission process**	
August	**Module I** **Introduction to java And OOP's Concepts** **Introduction to Java** : History of java, Features of Java, structure of java program – compilation and execution of program, Comparison between C++ and java,JDK Tools, Java Virtual Machine(JVM), Automatic Garbage Collection, Data Types, Tokens ,Java Keywords, Type conversions -implicit and explicit conversion, Accepting input from console (Using scanner class and command line arguments), Operators - arithemetic, relational, logical, unary, ternary, bitwise	1. Java programs based on branching and looping statements. 2.Java programs based Type Casting 3.Java programs based on command line arguments
September	Branching and looping statement **OOP in Java :** Introductionto Class, Object and method, static keyword, Constructor, this keyword, constructor overloading Inheritance- Definition and its types - single, multilevel, hierarchical concepts of overloading and method overriding, super Keyword, Difference between Overloading and overriding, Abstract Classes and abstract methods, Defining and Implementing Interfaces	4. Java programs based on constructors 5.Java programs based on inheritance 6.Java programs based on method overloading 7.Java programs based on method overriding.
October	**Module II** **Package ,Exception Handling and Multithreading** **Package** : Defining package, System Packages –java, lang, awt, javax, swing, net, io, util.,	8. Java programs based on interfaces 9.Java programs based on packages

	user defined packages-creating and accessing the package **Exception Handling**- Concept, types- Checked and unchecked, try and catch block, multiple catch, Try-catch –finally block, throw and throws clause, finally clause **Multithreading**- What are threads?, difference between process and thread, Life cycle of thread, methods of thread class, creating thread using thread class and runnable interface, isAlive() and join() methods, Thread priorities , Running multiple threads ,Synchronization and interthread communication wait() , notify(), notifyAll() methods Threads, Thread Life-Cycle, Creating threads using Thread class & Runnable Interface, Thread Priorities, Exception handling - Fundamentals of exception handling, Exception types, Using try and catch, multiple catch clauses, throw, throws and finally, Built- in exceptions, Creating own exception sub classes.	10.Java programs based on multithreading 11.Java programs based on exception handling
Course Title: DSC H13 Advanced Java (Sem-VI)		
November	**ESE Related Work**	
December	**Module I** **AWT And Swing** **Awt**-What is AWT ? classes hierarchy, windows fundamentals Frame Windows Event Classes: Mouse Event Class, Action Event Class, Window Event Class, Event Listner Interface: Mouse Listener, Action Listener, Window Listener and Key Listner **AWT Controls** : Labels, Text Field, Push buttons, Layout Managers (Flow Layout, Border Layout, Grid Layout, Card Layout) **Swing**- What is Swing? Difference between AWT and Swing., The MVC Architecture and Components – JFrame, JButton, JLabel, JText, JTextArea, JCheckBox and JRadioButton, JList, JComboBox, JMenu ,JtabbedPane , JScrollBar , Dialogs (Message, confirmation, input)	
January	**AWT Controls** : Labels, Text Field, Push buttons, Layout Managers (Flow Layout, Border Layout, Grid Layout, Card Layout) **Swing**- What is Swing? Difference between AWT and Swing., The MVC Architecture and Components – JFrame, JButton, JLabel, JText, JTextArea, JCheckBox and JRadioButton,	1.Program on Swing. 2.Simple program using servlet

	JList, JComboBox, JMenu ,JtabbedPane , JScrollBar , Dialogs (Message, confirmation, input)	
February	**Module II** **Servlet And JSP,JDBC** **What is JDBC** ? Steps for connectivity between Java program and database. ,Type of drivers,Simple program - database operations like creating tables, CRUD(Create, Read, Update, Delete) operations using SQL **Introduction of servlet**: How servelet work, model diagram, Uses of servlet, Life cycle of servlet, Servlet API: packages- javax. servlet and javax. servlet.http, Session Tracking Mechanism- HttpSession, Cookies, URL-Rewriting, Hidden-Form Fields	3. Simple program using JSP 4.Program on database connection.
March	**Introduction to JSP :**LifeCycleof JSP , Jsp Directives- 1.page 2.include 3.taglib, Jsp Scripting Elements - 1.declaratives 2.scriptlets 3.expressions, Simple application using JSP, Difference between JSP and Servlet	5**.** Develop a java application to store image in database as well as retrieve image From database. 6.Create EMP table in database and perform insert, update and delete operation on EMP table using JSP.
April	**Exam Related Work**	

ADSP Mandal's

Mahavir Mahavidyalaya, Kolhapur

Department of Computer Science

B.Sc- III

Course Title: DSC H12 Python part-I (Sem-V)

Course Teacher: Prof. G.S. Chavan
Teaching Plan 2023-24

Month	Theory Component	Practical Component
July	**Admission process**	
August	• **Introduction** History, Features, Structure of a Python Program (Python Shell Indentations, Comments), Python Interpreter, Writing and executing simple program, Variable and Data Types, Operators, Keywords, Type conversion, Input , output functions(Print(),Input(), raw_input()). • **Conditional statements** If, If- else, Nested if-else • **Looping Statements** For, While, Nested loops. • **Control Statements** Break, Continue, Pass	1.Program based on python simple concepts. 2.Program based on conditional constructs 3.Program based on loops. 4.Program based on control statements.
September	• **String Manipulation** Declaring strings, Accessing Strings, 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 and Methods **Lists :** Creating a list, Displaying list(print()), Basic Operations(Length (len()), Concatenation(+), Repetition(*), Membership (in, not in), Iteration (for var in list), Slicing, Updating(=) and deleting(del) element of a list, List functions and methods.	1.Program based on string 2.Program based on string functions and methods 3.Program based on list 4.Program based on List methods and functions

October	• **Tuples**: Creating tuples and Deleting tuple, empty tuple, Displaying(print()), Basic Operation(Length (len()), Concatenation(+), Repetition(*), Membership (in, not in), Iteration (for var in list), Slicing)), Tuple functions and methods. • **Dictionaries** Concept of dictionary, Creating Dictionary ({Key:Value,…}), Properties of Dictionary keys, Basic Operation(Length (len()), Compare (cmp())), Dictionary Methods(Clear (dict.clear())), Existance of Key (dict.has_key()), List of dictionaries tuple pairs (dict.items()), List of keys (dict.keys()), Add dictionary (dict.update()), Dictionary Values (dict.values()))	1..Program based on tuple 2.Program based on tuple methods and functions 3.Program based on dictionary 4.Program based on dictionary methods and functions
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Course Title: DSC H16 Python Part -II (Sem-VI)		
November	**Exam Related Work**	
December	**Functions** Defining a function, Calling a function, Types of functions, Function Arguments, Anonymous functions, Scope of variables(Global and local variables) **Modules** Importing module, creating and exploring module, Math module, Random module, Time Module, Packages.	1.Program based on simple Python function. 2.Program based on function arguments. 3.Program based on module. 4.Program that importing math module.
January	**Input-Output** Printing on screen, Reading data from keyboard, Opening and closing file, Reading and writing to files. **Exception Handling** Exception, Exception Handling, Except clause, Try , finally clause, User Defined Exceptions	1.Program to create user-defined exception 2.Program to demonstrate read and write operations on file. 3.Program to demonstrate to open and close file

		4.Program to handle simple runtime error 5.Program to handle multiple errors with one except statement
February	**Object Oriented Programming Concepts** **Classes and Objects** : Python Classes, Objects, Specifying attributes and behaviors, instance methods, instance attributes, static methods, constructor, types of constructors(default, parameterized), constructor overloading , method overloading **Inheritance and Polymorphism:** Inheritance in Python (Syntax, Advantages,), Access Modifiers in Python, Types of Inheritance (single, multiple, multilevel, hierarchical and hybrid), Polymorphism-Method Overriding, magic methods and Operator Overloading.	1.Write a program to demonstrate the use of class 2.Write a Python program to demonstrate inheritance 3.Write a Python program to demonstrate overloading
March	**Exam Related Work**	
April	**Exam Related Work**	