DPG Institute of Technology and Management
Sector 34, Gurugram HR 122004

Lesson Plan

Course Name: PYTHON PROGRAMMING BASIC

Faculty Name: MEENAKSHI GUPTA (ASST.Prof)

No. of Lecture Hours/Week	**2**	**Exam Hours**	**2**
Total No. of Lecture Hours	**19**	**Exam Marks**	**75**
Course Code:	**PCC-CSE-207G**	**Semester**	**3rd**

Course Objectives:

1. To impart the basic concepts of Python programming.
2. To understand syntax of Python language
3. To create dynamic applications in Python language.
4. To implement object-oriented concepts using Python language.

S. No	Topics to be covered	Teaching Methodology	Remarks
SECTION A	**INTRODUCTION WITH PYTHON**		
1	Installing Python; basic syntax, , interactive shell, editing, saving, and running a script	Chalk &Talk	CO1
2	data types, variables, assignments; numerical types; arithmetic operators and expressions. Subscript operator	Chalk &Talk	
3	data types, variables, assignments; numerical types; arithmetic operators and expressions.	Chalk &Talk	
4	Control statements, example of if , if -else condition. Example of these conditional statements	https://youtu.be/61aMAXID85o?si=ZhUXmQU08r_wmb9x	
5	Loops, example of different loops , while loop, for loop	Chalk &Talk	
4	Break, continue and goto statement examples	Chalk &Talk	
6	Revision with more examples Conditional statements, Loops and Selection statements	PPT	
7	String manipulations, subscript operator, indexing, slicing a string	Chalk &Talk	
8	String manipulations, string different methods, indexing, slicing of string	PPT	
9	text files: reading/writing text and numbers from/to a file.	Chalk &Talk	

10	Examples of creating and reading a formatted file.	Chalk &Talk	CO1
SECTION B	**LISTS, DICTIONARY AND DESIGN WITH FUNCTIONS**		
11	Basic list operators, replacing, inserting, removing an element; searching and sorting lists	Chalk &Talk	CO2
12	Tuples, basic functions, replacing, inserting, removing an element	Chalk &Talk	
13	Dictionary literals, adding, and removing keys, accessing and replacing values; traversing dictionaries.	Chalk &Talk	
14	Searching and sorting in python	Chalk &Talk	
15	Revision of LIST,TUPLE and DICTIONARY with extra examples	Chalk &Talk	
16	Hiding redundancy, complexity; arguments and return values Program structure and design; Recursive functions.	Chalk &Talk	
SECTION C	**SIMPLE GRAPHICS AND IMAGE PROCESSING**		
17	Simple graphics, Turtle operations, manipulating turtle screen, how to examining an object attribute	Chalk &Talk	CO3
18	Drawing two dimensional shapes (triangle, circle, rectangle, square)	Chalk &Talk	
19	Drawing a a random walk of cursor using turtle.	Chalk &Talk	
20	Introduction with Image processing and image processing module. Discuss Color and RGB scheme	Chalk &Talk	
21	Image manipulation operations, different attributes and properties of images	Chalk &Talk	
22	Discuss how to copying a image with a program ,	Chalk &Talk	
23	Discuss how to blurring the image and reducing the size of image.	Chalk &Talk	
24	Introduction with Graphical User Interfaces: Terminal based and GUI based programs, Simple GUI-Based Programs,	Chalk &Talk	
25	Introduction with Windows and Window Components, discuss various window components and their uses in GUI.	Chalk &Talk	CO3

26	Input and Output with Entry Fields, Defining and Using Instance Variables, Other Useful GUI Resources	Chalk &Talk	CO3
27	Introduction with Thinker Module, learn why,where and how to use thinker module with the help of examples.	Chalk &Talk	
SECTION D	**OBJECT ORIENTED CONCEPTS**		
28	Classes and OOP: classes, objects, attributes and methods; defining classes; design with classes'	Chalk &Talk	
29	OOPS concepts, Data Modelling	Chalk &Talk	CO4
30	Introduction with Inheritance, various kind of inheritance, (single inheritance, multi-level, hybris, multiple, hierarchical)	Chalk &Talk	
31	Exercise question of various inheritance	Chalk &Talk	
32	Polymorphism, and abstract class	Chalk &Talk	
33	Operator overriding and operator overloading, examples practices	Chalk &Talk	
35	Exception handling, try block , Multithreading: Threads and Processes,	Chalk &Talk	
36	Threads and Processes, Sleeping Threads, Producer, Consumer, and Synchronization,	Chalk &Talk	
37	The Readers and Writers Problem, Shared Cell Class, Thread-Safe Class.	Chalk &Talk	
38	Revision of multithreading questions	Chalk &Talk	
39	Revision of thread class	Chalk &Talk	

Suggested Text / Reference Books

- Fundamentals of Python: First Programs" Kenneth Lambert, Course Technology, Cengage Learning, 2012

- Introduction to Computer Science Using Python: A Computational Problem-Solving Focus", By Charles Dierbach, John Wiley & Sons, December 2012

Course Outcomes:

At the end of the course, the student will be able:

CO 1	For a given conceptual problem student will able to analyze the problem and write a program in python with basic concepts.
CO 2	For a given problem of Strings and texts, student will able to analyze the problem and write a program in python with basic concepts involving strings and texts.
CO 3	The knowledge of list and dictionary will enable student to implement in python language and analyze the same.
CO 4	Student will able to write a program using functions to implement the basic concepts of object oriented programming language.

Signature of Staff In-charge Signature of HOD