	DPG Institute of Technology and Management **Sector 34, Gurugram HR 122004**
	Lesson Plan
	Course Name: Advance Python Programming
	Faculty Name: Ms. Meenakshi Gupta

No. of Lecture Hours/Week	**03**	**Exam Hours**	**03**
Total No. of Lecture Hours	**32**	**Exam Marks**	**75**
Course Code:	PEC-DS-405G	**Semester**	**7th**

Course Objectives:

1. The students will able to apply python programming concepts for industry standard problems.
2. The students will to perform advanced Data Processing tasks like Data Merging and Mugging
3. The students will able to develop website using python.

Lecture No.	Topics to be covered	Teaching Methodology	Class Activity/Event	Remark/CO
UNIT-1				
1	Introduction with syllabus	Chalk &Talk		CO1
2	Introduction with Python Data Structures -list, tuple, dictionary, sets	PPT/Smart board	Quiz/MCQ	
3	Introduction with Functions, sets function and lambda function	Chalk &Talk		
4	Introduction with Exception and tell how to use try, catch function for exception	PPT/Smart board		
5	Parallel processing, Map function,	Chalk &Talk		
6	Iterator functions and discuss about generators	Chalk &Talk		
7	Class, object, datatype, variables, methods & creating object in the class.	PPT/Smart board		CO2
8	Creating Objects by Passing Values, Class Data, Abstraction, Data Hiding	Chalk &Talk		
9	Encapsulation, Modularity, Inheritance, Polymorphism	Chalk &Talk	Assignment-1	
UNIT-2				CO2
10	Introduction with Multithreading and Multiprocessing Basics-Threading module	Smart board		
11	Example – Python multithreading - Multithreaded	Chalk &Talk		

12	Introduction with Priority Queue and its example	Chalk &Talk		CO2
13	Handling CSV, Excel and JSON data - Creating NumPy arrays, Indexing and slicing in NumPy	Chalk &Talk		CO3
14	Creating 1d,2d and multidimensional arrays, NumPy Data types	Chalk &Talk		
15	Array attributes, Downloading and parsing data, Attribute, Indexing and Slicing of NumPy Arrays	Chalk &Talk		
16	Creating array views copies, Manipulating array shapes I/O	Chalk &Talk		
17	Introduction with MATPLOT library Different function used in MATPLOT Library and how to draw various charts using MATPLOT library.	Chalk &Talk		
UNIT-3				
18	Introduction with panda's library, Using multilevel series, Series and Data Frames	Chalk &Talk		CO3
19	Grouping, aggregating, Merge Data Frames Generate summary tables	Chalk &Talk		
20	Group data into logical pieces, manipulate dates, Creating metrics for analysis	Chalk &Talk		
21	Data wrangling, data cleaning	Chalk &Talk		
22	Merging and joining different tables or datasets into one dataset	Chalk &Talk		
23	Example - Loan Prediction Problem,	Smart board/disscussion	ASSIGNMENT 2	
24	Data Mugging using Pandas	Chalk &Talk		
25	Discussion on case study – Uber, Netflix	Smart board		
UNIT-4				
26	Introduction with various Web Applications with Python – Django basics	https://youtu.be/oNNDR3Sm3Zs		CO4
27	Introduction with various Web Applications with Python – Flask basics	https://youtu.be/4L_xAWDRs7w		
28	Introduction with various Web Applications with Python – Web2Py basics	Chalk &Talk		
29	Database Programming – NoSQL databases (MongoDB)	https://youtu.be/VELru-FCWDM		
30	Introduction with IOT devices	Chalk &Talk		

31	Discussion on Building a Predictive Model for IOT and Web programming and examples	Discussion		
32	Recent Trends and Contemporary issues of IOT	Discussion		

Assessment Methods: -

S.No.	Evaluation Component	Assessment Method	Marks
1	**Internal Marks**		**25**
		Attendance	**5**
2		**Quiz/Presentation**	**5**
3		**Assignment**	**5**
4		**Avg of Sessional 1&2**	**10**
5	**External Marks**	**Final University Exam**	**75**

Text Book:

1. Data Science From Scratch: First Principles with Python, Second Edition (Greyscale Indian Edition) Paperback – 5 May 2019,by Joel Grus (Author)
2. Doug Farrell, The Well-Grounded Python Developer; Manning Publications, 2021
3. Paul Barry, Head-First Python, O-Reilly Media, 2016
4. Zed A Shaw, Learn Python the Hard Way - A Very Simple Introduction to the TerrifyinglyBeautiful World of Computers and Code, Addison Wesley Press, 2013

Reference Book:

1. Eric Mathews, Python Crash Course, Second Edition, No Starch Press, 2019
2. Michael Kennedy, Talk Python: Building Data-Driven Web Apps with Flask and SQL Alchemy,Manning Publications, 2020

Course Outcomes:

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

CO 1	To understand the nuances of Data Structures like list,tuple,dictinary,sets
CO 2	To understand the concepts of a classes and objects and their potential and gain knowledge of multithreading concepts and implementing the same.
CO 3	To understand the difference between different data processing techniques using different python data analysis libraries.
CO 4	To understand the developing web-apps using python framework and build models for IoT

CO-PO-PSO Mapping:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO1 2	PS O1	PS O2	PS O3
CO 1	2	1	1		1	1	0	1	1	2	2	1		2	1
CO 2	2	2	3	2	3	2	1	2	2	2	3	2	1	2	2
CO 3	2	2	2	1	2	2	1	2	2	2	2	2	2	3	3
CO 4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Signature of Staff In-charge

Signature of HOD