

Semester IV

Savitribai Phule Pune University
S.Y.B.Sc. (Computer Science) - Sem – IV
Course Type: VSC
Course Code: CS-271-VSC-P
Course Title : Advance Python Programming

Teaching Scheme 04 Hrs/ week	No. of Credits 2	Examination Scheme IE : 15 marks UE: 35 marks
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Prerequisites -

- Basic Python Programming Knowledge
- Basic Understanding of pattern matching and String operations
- Knowledge of file handling

Course Objectives

- Understand and manipulate operations on data in Python
- Develop the ability to write reusable functions to organize code better and improve efficiency.
- Learn to structure their programs using functions and modules to improve readability and maintainability.

Course Outcomes

On completion of the course, student will be able to—

CO1: Read and write data from & to files in Python.

CO2: Express proficiency in the handling of strings and functions

CO3: Identify the commonly used operations involving file systems and regular expressions.

CO4: Develop application using python.

Course Contents

Assignment 1	Data Frame	1 Slot
<ul style="list-style-type: none"> • Creating Data Frame - User define, using csv file • View Data Frame • Preprocessing on Data Frame - Null Values, Duplicate values • Modify Data in DataFrame • Grouping and Aggregating Data • Merging and Joining DataFrames 		

Assignment 2	Functions in Python	2 Slots
	<ul style="list-style-type: none"> • Creating user defined functions • Calling a function • Function Arguments • Return Statement • Functions returning multiple values • Anonymous Functions • Recursive Functions 	
Assignment 3	Iterators & Generators in Python	2 Slots
	<ul style="list-style-type: none"> • Function ducktyping • List comprehension • Unpacking argument list • Creating Iterator • Creating Generator 	
Assignment 4	Modules	1 Slot
	<ul style="list-style-type: none"> • Importing module • Creating & exploring modules • Math module • Random module • Time module 	
Assignment 5	Packages	1 Slot
	<ul style="list-style-type: none"> • Importing package • creating package 	
Assignment 6	Working with Files	2 Slots
	<ul style="list-style-type: none"> • Creating files and Operations on files (open, close, read, write), • File object attributes, • file positions, • Listing Files in a Directory, • Testing File Types, • Removing files and directories, • copying and renaming files 	

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Assignment 7	Regular Expression	2 Slots
	<ul style="list-style-type: none">• Concept of regular expression,• various types of regular expressions• function related to regular expressions.	
Assignment 8	Exception Handling	1 Slot
	<ul style="list-style-type: none">• Built-in Exceptions• Handling Exceptions• Exception with Arguments• User-defined Exceptions.	

Note: 1 Slot = 4 Hours