

**Objectives:** To write compact codes specifically for programming in data analytics, AI and scientific computing. To understand and use various constructs available in python language. To understand and apply various functions on file data.

**Unit I:** Introduction To Python: Installation and Working with Python, Understanding Python variables, Python basic Operators, Understanding python blocks

**Unit II:** Python Data Types: Declaring and using Numeric data types: int, float, complex, Using string data type and string operations, Defining list and list slicing, Use of Tuple data type

**Unit III:** Python Program Flow Control: Conditional blocks using if, else and elif, Simple for loops in python, For loop using ranges, string, list and dictionaries, Use of while loops in python, Loop manipulation using pass, continue, break and else, Programming using Python conditional and loops block

**Unit IV:** Python Functions, Modules And Packages: Organizing python codes using functions, Organizing python projects into modules, Importing own module as well as external modules, Understanding Packages, Powerful Lamda function in python, Programming using functions, modules and external packages

**Unit V:** Python String, List And Dictionary Manipulations: Building blocks of python programs, Understanding string in build methods, List manipulation using in build methods, Dictionary manipulation, Programming using string, list and dictionary in build functions

**Unit VI:** Python File Operation: Reading config files in python, Writing log files in python, Understanding read functions, read(), readline() and readlines(), Understanding write functions, write() and writelines(), Manipulating file pointer using seek, Programming using file operations

**Unit VII:** Python Exception Handling: Avoiding code break using exception handling, Safe guarding file operation using exception handling, Handling and helping developer with error code, Programming using Exception handling

### Reference Books

1. Core Python Programming by Dr. R. Nageswara Rao DreamTech, Second edition
2. Core Python Programming by Wesley J. Chun Prentice Hall PTR, Second Edition, ISBN-13: 978-0132269933, ISBN-10: 0132269937
3. Data Structures and Algorithms in Python by Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser Wiley
4. Fundamentals of Python – First Programs by Kenneth A. Lambert CENGAGE Publication, ISBN-13: 978-1111822705, ISBN-10: 1111822700