

Topic:

Introduction to Python Programming

About the course:

This course provides a comprehensive introduction to Python programming, one of the most widely used and beginner-friendly programming languages in the world. The course is designed to develop fundamental programming skills and problem-solving abilities through Python's simple and readable syntax. Essential concepts such as variables, data types, operators, conditional statements, loops, functions, strings, lists, tuples, dictionaries, file handling, and object-oriented programming will be introduced. The course also emphasizes practical application through hands-on coding exercises enabling learners to design and develop basic software applications independently.

Duration -

30 hours

Total Days required:

15 days (2hr per day)

Course Faculty:

Dr.Swapna P S

**Weekly plan for topic coverage:**

Week	Topics Covered	Learning Outcomes / Activities
1	Basics of Python Programming	Introduction to Python, installation and IDE setup, Python syntax, variables, data types, input/output statements, writing simple Python programs. Hands-on exercises on basic coding.
2	Operators and Expressions Loop Control Statements	Arithmetic, relational, logical, assignment and bitwise operators, expressions and precedence. Introduction to conditional and looping statements using if, for, and while. Simple programming exercises.

Week	Topics Covered	Learning Outcomes / Activities
3	Loop Control Statements	Nested loops, break, continue, and pass statements, pattern programs, iterative problem solving, and debugging exercises. Practice problems based on loops.
4	List and Tuple	Creation and manipulation of lists and tuples, indexing, slicing, built-in methods, list operations, tuple packing and unpacking. Practical exercises using sequences.
5	Set and Dictionary	Set operations, dictionary creation and manipulation, keys and values, dictionary methods, applications of sets and dictionaries in problem solving.
6	String Manipulation	String operations, indexing, slicing, formatting, string methods, searching and replacing, regular expressions basics, and text-processing programs.
7	NumPy and Pandas Library	Introduction to NumPy arrays, array operations, mathematical functions, introduction to Pandas Series and DataFrames, loading and viewing datasets.
8	Data Manipulation using Pandas	Data cleaning, filtering, sorting, grouping, handling missing values, basic data analysis and visualization using Pandas.

Total no of assignments in plan:

2

Final Evaluation Plan : practical/ Lab Exam- online