<table>
<tr><th colspan="3">CS-30: Programming in Python</th></tr>
<tr><td colspan="3">Objectives:
Understanding basic syntax of python and emphasize the importance of writing clear and concise code documentation and comments.
Familiarize students with Python’s style guide and best practices for writing Pythonic code.
Familiarize students with built-in data structures in Python such as lists, tuples, dictionaries etc.
Prerequisites:
Basic Computer Skills.
Fundamental Programming Concepts.
Problem-Solving Skills.</td></tr>
<tr><th>Unit No.</th><th>Topic</th><th>Detail</th></tr>
<tr><td>1</td><td>Introduction to Python</td><td>The basic elements of Python
Branching programs
Strings and Input
Iteration
Functions and Scoping, Specifications, Recursion
Global variables, Modules, Files
Tuples, Lists and Mutability
Functions as Objects, Strings
Tuples and Lists, Dictionaries</td></tr>
<tr><td>2</td><td>OOP using Python</td><td>Handling exceptions,
Exceptions as a control flow mechanism,
Assertions, Abstract Data Types and Classes,
Inheritance,
Encapsulation and information hiding,
Search Algorithms, Sorting Algorithms,
Hashtables</td></tr>
<tr><td>3</td><td>Plotting using PyLab</td><td>Plotting using PyLab,
Plotting mortgages and extended examples,
Fibonacci sequence revisited, Dynamic
programming and the 0/1 Knapsack algorithm,
Dynamic programming and divide and conquer</td></tr>
</table>

4	Network Programming and GUI using Python	• Network Programming: ▪ Protocol, Sockets, ▪ Knowing IP Address, ▪ URL, Reading the Source Code of a Web Page, ▪ Downloading a Web Page from Internet, ▪ Downloading an Image from Internet, ▪ A TCP/IP Server, A TCP/IP Client, ▪ A UDP Server, A UDP Client, ▪ File Server, File Client, ▪ Two-Way Communication between Server and Client, ▪ Sending a Simple Mail. • GUI Programming: ▪ Event-driven programming paradigm; ▪ creating simple GUI; ▪ buttons, labels, entry fields, dialogs; ▪ widget attributes - sizes, fonts, colors, treeview, layouts, nested frames
5	Connecting with Database	• Verifying the MySQL dB Interface Installation, • Working with MySQL Database, • Using MySQL from Python, • Retrieving All Rows from a Table, • Inserting Rows into a Table, • Deleting Rows from a Table, • Updating Rows in a Table, • Creating Database Tables through Python

ReferenceBooks:

- "Core Python Programming" by Dr.R. NageswaraRao– 2017 Edition, Dreamtech Press
- JohnVGuttag."Introduction to Computation and Programming Using Python", Prentice Hall of India
- Robert Sedgewick,KevinWayne,Robert Dondero, Introduction to Programming in python, Pearson
- WesleyJ Chun,CorePython ApplicationsProgramming,3rd Edition.Pearson
- Michael Bowles, Machine Leaning in Python, Esssential techniques for predictive analysis, Wiley

Course Outcomes:

- Understand the concept of programming with Python
- Understand the OOP using Python
- Implementing the plotting using PyLab
- Understand the Network Programming and GUI
- Understand and Implement database connectivity