



DON BOSCO ARTS & SCIENCE COLLEGE

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Python Programming

2019-20

BCA Department



SYLLABUS FOR ADD-ON COURSE

Module I

Basic Elements and Control Statements: Features of Python, Different Methods to Run Python, Basic Elements (Objects, Expressions, Numerical Types, Strings, Variables), Comments, Indentation in Python, Input and Output in Python, import function, Operators in Python, Branching (if, else, elif), Iteration (while, for), range and enumerate functions, Tuples, Lists, Sets, Dictionaries, Built-in methods of lists, sets and dictionaries, Mutable and Immutable Objects.

Module II

Functions, Modules and Exception Handling: Functions Definition, Function Calling, Function Arguments (Required, Keyword, Default), Recursion, Modules, Built-in Modules, Creating Modules, File Handling (Opening, Closing, Writing, Reading), Exceptions, Built-in Exceptions (IndexError, OverflowError, ZeroDivisionError, RuntimeError), Exception Handling.

Module III

Object Oriented Programming, Arrays and Data Visualization: Class Definition, Object Creation, Built-in Attribute Methods, Object Oriented Programming Features of Python. Arrays in Python, Numpy Module, ndarray, Creating Arrays (array, zeros, ones, empty, linspace, arrange, random), Two-Dimensional Array, Indexing, Slicing, Iterating, Copying, Splitting, Shape Manipulation (reshape, transpose, resize), Arithmetic Operations on Arrays. Data Visualization in Python matplotlib Module, pyplot, plot(), scatter, bar charts, Formatting, figure(), subplot(), text(), xlabel(), ylabel(), title(), Plotting Simple Mathematical Functions (sin x, x²).

Module IV

Connecting to Database: Connecting to a Database, Basic Operations on Database (Crater, Insert, Update, Delete), Fetching Data from a Database, Transaction Control.

Module V

GUI Programming: GUI Programming using Tkinter, Tkinter Widgets (Label, Message, Entry, Text, Button, tkMessageBox, RadioButton, Checkbutton, Listbox, Menu, Menubutton, Scale, Scrollbar, Canvas), Layout Managers.

Reference

1. Dr. Jeeva Jose, Taming Python By Programming, Khanna Publishing
2. John V. Guttag, Introduction to Computation and Programming Using Python with Application to Understanding Data, PHI (2016)
3. Charles Dierbach, Introduction to Computer Science using Python, Wiley (2015)
4. Python for Education by Ajith Kumar B P