

ST. JOSEPH'S COLLEGE (AUTONOMOUS)

BENGALURU-27



Re-accredited with 'A++' GRADE with 3.79/4 CGPA by
NAAC Recognized by UGC as College of Excellence

**ST. JOSEPH'S INSTITUTE OF INFORMATION
TECHNOLOGY**

DEPARTMENT OF ADVANCED COMPUTING

**SYLLABUS FOR CERTIFICATE COURSE – PYTHON
PROGRAMMING**

PYTHON PROGRAMMING

Python is easy to use, powerful, and versatile, making it a great choice for beginners and experts alike. Python's readability makes it a great first programming language — it allows you to think like a programmer and not waste time with confusing syntax.

ELIGIBILITY:

A candidate who has passed the two years Pre-University Examination conducted by the Pre-University Education Board in Karnataka or Three years Diploma in Engineering of Government of Karnataka or any other examination considered equivalent thereto shall be eligible for admission

COURSE OBJECTIVES:

This Python Programming course leads students from the basics of writing and running Python scripts to more advanced features such as file operations, regular expressions, working with binary data, and using the extensive functionality of Python modules. Extra emphasis is placed on features unique to Python, such as tuples, array slices, and output formatting.

TOTAL CREDITS: Two credits

COURSE OUTCOMES:

CO1: Understand the basic concepts and principles of Python programming.

CO2: Understand the pros and cons of scripting languages vs. classical programming languages (at a high level) by implementing various control statements.

CO3: Able to gain insight knowledge towards Functions, I/O, File Handling and Packages.

CO4: Gain knowledge of object-oriented programming in Python.

UNIT I: INTRODUCTION TO PYTHON INTERPRETER (10 Hrs)

Python - Introduction, Advantages and Disadvantages, History, Features, Applications, Python Internals, Runtime Structure, Basic Syntax, Python Identifiers, Reserved Keywords, Data Types, List, Tuple, Dictionary, Set

UNIT II: CONTROL STATEMENTS (15 Hrs)

while loop, for loop, if statement, break statement, continue statement

UNIT III: FUNCTIONS, I/O, FILE HANDLING, PACKAGES/LIBRARIES (15 Hrs)

Functions - Define, call, pass by reference, Function Arguments, Anonymous Function or Lambda Function, return statement.

I/O - Handling Files, Types of Files, Open(), close(), Different modes, Read & Write, file positions, File Seek, OS File/Directory Methods - Types and Methods

Packages/Libraries - Modules, import statement, packages.

UNIT IV: EXCEPTION HANDLING, OO PROGRAMMING (15 Hrs)

Exception Handling - Exception Types, Handling Exceptions, Raising Exceptions

OO Programming - Classes, Objects, creating object, self-parameter, init function, destructors, privacy in python, Inheritance and its types, Polymorphism - Method overloading, method overriding, constructor overriding, operator overloading.

SELF STUDY (5 Hrs)

SUGGESTED BOOKS

1. Python in easy steps - Mike McGrath, In Easy Steps Limited, Second Edition
2. "Hello World" - Computer Programming for Kids and other Beginners - Warren and Carter, Manning Publications, 2014
3. Python3 Tutorial - Tutorialspoint