Python Programming

Introduction

The Python Programming Certification is designed to teach the basics of python programming. Python is a general-purpose, dynamic, high level and interpreted programming language. It supports Object Oriented programming approach to develop applications. It is simple and easy to learn and provides lots of high-level data structures. With this certification, students will be able to create complete web applications using python libraries and Django Framework. Python programmers are highly paid in the IT industry and python applications are highly demanding on freelancing platforms. It benefits students who have completed intermediate in computers and have basic programming skills.

REQUIREMENTS:

- Intermediate/O/A-level
- Basic Programming Skills
- Basic Computer Skills

CURRICULUM:

Sr. No.	Contents
1	**Introduction** • Introduction to Programming • Theoretical Explanation
2	**Python Basics** • Introduction to Python Programming • Python Basics
3	**Syntax Familiarity** • Python syntax • Variables • Operators • Data Types
4	**Conditioning and Iterations** • Conditional statement • Loops
5	**Functions and Libraries** • Python Functions • In-Built Functions • Lambda Function • Python Libraries

Sr. No.	Contents
6	**OOP in Python** • OOP In Python Basics • OOP Pillars in Python • Exception Handling
7	**Modules and File handling** • Python File reading and writing files • Python Modules
8	**Machine Learning** • Introduction • Types • Applications
9	**Regression** • Linear Regression • Ridge Regression • Lasso Regression
10	**Classification** • Naïve Bayes • Decision Tree • SVM • Logistic Regression

Sr. No.	Contents
11	**Ensemble Methods and evaluation** • Bagging • Boosting • Stacking • Blending • Classifiers Evaluation
12	**Feature Engineering and Optimization** • Feature Selection • Hyper-parameter Tuning of different classifiers
13	**Clustering** • K-Mean • K-Median • K-Medoids
14	**Mid Term And Project Discussion**
15	**Model Understanding** • Bias And Variance • Overfitting Underfitting
16	**Neural Network and NLP** • Introduction To Neural Networks (Theory) • Working of Neural Network • Introduction To NLP • Hyper-Parameters

Sr. No.	Contents
17	**Artificial Neural Network** • >Perceptron learning • >Fully Connected Network
18	**Activation Functions** • Sigmoid • Relu (Leaky and Exponential) • Tanh • Softmax
19	**Convolutional Neural Network and Embedding** • Convolution Operation • Pooling Layers • Dense Layers • Word2Vec
20	**Sequence Models** • RNN • LSTM • GRU
21	**Regularization Approaches** • L1 • L2 • Dropout • Early Stopping

Sr. No.	Contents
22	**Generative AI Project 1** • Chatbot 1
23	**Generative AI Project 2** • Chatbot 2
24	**Final Evaluation**

Outcomes:

- Develop complete web application using python
- Work with Django Framework
- Python applications

BENEFITS:

- To develop web applications using python
- Understanding of python programming
- Working with Django Framework

Skill-Wise Earnings:

Skill Level	Avg Monthly Salary

Junior	75k-100k
Mid-Level	100k - 170k
Advanced	250k- 450k
Freelancer	Earn in millions

Affiliation & Collaboarations

PBTE

PSDA