







# Syllabus - Machine Learning Training

Unit 1: Introduction To Python (6 Hours)

- Short history
- Introduction
- Features of Python
- Python Installation
- Python Interpreter
- How to Run Python
- Basic Syntax
- Input, Output Functions
- Comments

# Unit 2: The Basics (6 Hours)

- Variable and Data Types
- Numbers Strings Lists Tuple Set Dictionary
- Operators
- Arithmetic Operations

#### Unit 3: Conditional Statements (1 Hour)

- if Statement
- if...else Statement
- If...elif...else Statement
- Nested if statement

#### Unit 4: Looping (1 Hour)

- For loop
- For loop with else
- While Loop
- While Loop with else statement
- Nested loops

#### Unit 5: Control Statements (1 Hours)

- Break statement
- Continue statement
- Pass statement

#### Unit 6: Comprehensions (1.5 Hours)

- List Comprehensions
- Set Comprehensions
- Dictionary Comprehensions

#### Unit 7: Functions (2.5 Hours)

- Definition
- Function Calling
- Function Arguments
- Default Arguments
- Variable-length arguments
- Lambda functions
- Recursive functions
- Functions returning values

#### Unit 8: Modules (2 Hours)

- Creating Modules
- Import Statements
- Packages

#### Unit 9: File Handling (2 Hours)

- Opening a File
- Reading from a File
- Writing to a File
- Closing a File
- File Methods
- Renaming a File
- Deleting a File
- Directories in Python

#### Unit 10: Exception Handling (3 Hours)

- Handling Exceptions
- Exception with arguments
- Raising an Exception
- User-defined Exception
- Assertions in Python

## Unit 11: Object Oriented Programming with Python (5 Hours)

- Overview of Classes and Objects
- Using Class
- Using Methods
- Use Object Data
- Inheritance
- Destructors
- Encapsulation
- Data hiding
- Method overriding
- Polymorphism

# Unit 12: Regular expressions (5 Hours)

- Introduction
- match() function
- search() function
- search and replace
- regular expression modifiers
- regular expression patterns
- Character classes
- special character classes
- repetition cases
- findall() method
- compile() method

#### Unit 13: Database Programming (3 Hours)

- Connecting to a database
- Creating a Database
- Creating DB table Advanced Education Services
- Insert and Update Records
- Retrieve and Delete Records
- Transaction Control
- Disconnecting from a database.

## Unit 14: Python Advanced Programming (3 Hours)

- Python MongoDB concepts
- Python Tkinter programming
- Python Machine Learning concepts cdv

#### Unit 15: Introduction to Machine Learning (5 Hours)

- What is machine learning
- Applications
- Supervised vs Unsupervised learning ced Education Services
- Data Processing

#### Unit 16: Regression & Classification (8 Hours)

- Linear Regression
- Non-linear Regression
- K-Nearest Neighbour
- Decision Trees
- Logistic Regression
- Support Vector Machines

#### Unit 17: Clustering (5 Hours)

- K-Means Clustering
- Hierarchical Clustering
- Density-Based Clustering

#### Unit 18: Python Libraries for ML (10 Hours)

- Numpy
- SciPy
- Pandas
- Scikit-learn
- Matplotlib

#### Unit 19: Visualization Tools (10 Hours)

- Introduction to Data Visualization
- Plotting with Matplotlib
- Area Plots, Histograms, Bar Charts
- Pie Charts, Box Plots, Scatter Plots, Bubble Plots

### Unit 19: Image Data in Machine Learning (5 Hours)

- Image storage formats
- Scikit-image
- Smoothing and denoising
- Working with text and databases NLTK

#### Unit 20 : Data analysis & Visualization project (15 Hours)

Project

# Training Fees / Duration (Rs. 2,500/- Onwards)

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