Machine Learning Journey through Python- Training Plan

Embark on an exciting journey to learn Machine Learning with Python! This comprehensive training program is designed to guide you through the fascinating world of machine learning, one step at a time. From April 2025 to December 2025, we will conduct monthly training sessions, each focusing on a specific aspect of machine learning.

Training Schedule:

- **Part 1: Basic Python**
- **Part 2: Intermediate Python**
- **Part 3: Advanced Python**
- **Part 4: Machine Learning Packages - NumPy**
- **Part 5: Machine Learning Packages - Pandas**
- **Part 6: Machine Learning Packages - Seaborn**
- **Part 7: Machine Learning (Part 1)**
- **Part 8: Machine Learning (Part 2)**
- **Part 9: Machine Learning (Part 3)**

Each session will be conducted through our calendar training track, ensuring a structured and engaging learning experience. By the end of this journey, you will have a solid understanding of machine learning concepts and hands-on experience with Python, enabling you to tackle real-world problems with confidence.

Join us on this journey and take the first step towards becoming a machine learning expert. Register now and secure your spot!

****Prerequisite: ****

Participants are expected to complete the self-learning material provided in the Percipio link before attending the instructor-led training sessions. This will ensure that everyone has a solid foundation and can make the most out of the training.

Machine Learning Journey through Python					
PHASE-1					
Sl NO	**Main Topic**	**Subtopic**	**Percipio Link**	**Calendar Training**	**No of hours**
1	Basic Python	1. Introduction to Python 2. Operators & expressions 3. Control Flow 4. Strings 5. Python Data Structures 6. I/O operation	1. Percipio Course Getting Started with Python: Introduction 2. Percipio Course Conditional Statements & Loops: If-else Control Structures in Python 3. Percipio Course Conditional Statements & Loops: The Basics of for Loops in Python 4. Percipio Course Complex Data Types in Python: Working with Lists & Tuples in Python 5. Percipio Course Complex Data Types in Python: Working with Dictionaries & Sets in Python	April 2025	20
2	Intermediate Python	1. Functions 2. OOPs -Part 1 3. OOPs- Part 2 4. Modules & Packages 5. Exception Handling	1. Percipio Course Functions in Python: Introduction 2. Percipio Course Python Classes & Inheritance: Introduction 3. Percipio Course Python Classes & Inheritance:	May 2025	20

			Getting Started with Classes in Python 4. Percipio Course Python Classes & Inheritance: Working with Inheritance in Python 5. Percipio Course Python Classes & Inheritance: Advanced Functionality Using Python Classes 6. Percipio Video Installing and Using a Custom Module 7. Percipio Video Creating Simple Python Modules 8. Percipio Interactive Course Python Errors 9. Percipio Video Handling Unexpected Errors 10. Percipio Interactive Course Python Exceptions 11. Percipio Video Catching Exceptions Using Python's Try Except Blocks		
TASK : Completion of PCEP – NLCI Journey Percipio Journey PCEP-02: Python Certified Entry-Level Python Programmer					
PHASE-2					
3	Advanced Python	1. Regular Expressions 2. Decorators & Generators 3. File Handling 4. Multithreading 5. Python-MySQL	1. Percipio Interactive Course Introduction to Regular Expressions	June 2025	20

			2. Percipio Interactive Course Python Generators 3. Percipio Course Python Decorators 4. Percipio Interactive Course Python Files 5. Percipio Course Advanced Python Topics: File Operations in Python 6. Percipio Course Python Concurrent Programming: Multithreading in Python		
TASK : Completion of PCAP – NLCI Journey Percipio Journey PCAP – Certified Associate Python Programmer					
PHASE-3					
4	Machine Learning Packages	1. Numpy a. Introduction to Numpy: Understanding Numpy arrays and their advantages. b. Array Operations: Creating, reshaping, and slicing arrays. c. Mathematical Functions: Applying mathematical operations on arrays. d. Image Manipulations: Images as arrays & image manipulation e. Statistical Functions: Calculating statistical metrics using Numpy. f. Broadcasting: Understanding and using broadcasting for array operations.	1. Percipio Course Python - Introduction to NumPy for Multi-dimensional Data 2. Percipio Course Python - Advanced Operations with NumPy Arrays	July 2025	15

		g. Linear Algebra: Performing linear algebra operations with Numpy.			
5		2. Spark a. **Core Spark Concepts:** i. Overview of Apache Spark and its purpose. ii. Basic Spark architecture iii. Highlight the benefit of distributed computing. b. **Spark DataFrames:** i. Spark DataFrames are and their structure. ii. Create DataFrames from various sources. iii. DataFrame operations iv. Similarities and difference between spark and pandas dataframes. c. **Spark SQL (Basic):** i. Creating temporary views from DataFrames. ii. Running basic SQL queries on those views. **3. Pandas** a. Introduction to Pandas: Understanding DataFrames and Series. b. Data Manipulation: Loading, cleaning, and transforming data. c. Indexing and Selecting Data: Advanced indexing and selection techniques.	1. Percipio Course Python - Using Pandas to Work with Series & DataFrames 2. Percipio Course Python - Pandas Advanced Features 3. Percipio Course Python - Manipulating & Analyzing Data in Pandas DataFrames	Aug 2025	20

		d. Group By: Splitting, applying, and combining data using group by operations. e. Pandas for advanced data manipulation			
6		4. Seaborn a. Introduction to Seaborn: Understanding Seaborn and its capabilities. b. Visualizing Distributions: Creating histograms, KDE plots, and box plots. c. Visualizing Relationships: Creating scatter plots, line plots, and pair plots. d. Visualizing Categorical Data: Creating bar plots, count plots, and violin plots. e. Customizing Plots: Customizing aesthetics and styles of plots. f. Advanced Visualizations: Creating heatmaps, cluster maps, and joint plots.	1. Percipio Course Python for Data Science: Basic Data Visualization Using Seaborn 2. Percipio Course Python for Data Science: Advanced Data Visualization Using Seaborn 3. Percipio Course Python Statistical Plots: Visualizing & Analyzing Data Using Seaborn	Sep 2025	15
7	Machine Learning	1. Machine Learning part-1 a. Introduction to Machine Learning: Understanding what machine learning is and its applications. b. Types of Machine learning algorithms c. Machine Learning Life cycle d. Supervised Learning: Understanding supervised learning algorithms.	1. Percipio Course Introduction to Machine Learning Bootcamp: Session 1 Replay	Oct 2025	20

		e. Unsupervised Learning: Understanding unsupervised learning algorithms.			
8		1. Machine Learning part-2 a. EDA b. Implementing Linear regression algorithm c. A mini project on Linear regression Algorithm	1. Percipio Course Introduction to Machine Learning Bootcamp: Session 2 Replay 2. Percipio Course Introduction to Machine Learning Bootcamp: Session 3 Replay	Nov 2025	20
9		1. Machine Learning part-3 a. Logistic regression: A solution to classification b. Implementing Logistic regression with Hands-on c. Decision tree Algorithm d. Ensemble model- Random Forest e. Model Evaluation and Optimization	1. Percipio Course Introduction to Machine Learning Bootcamp: Session 4 Replay	Dec 2025	20
		Total			170 Hours