



# PYTHON

## **Python Programming at Brainwave AI**

### **Duration: 2 Months.**

Python Programming at Brainwave AI is a practical, job-focused module designed to build strong coding foundations and prepare learners for Data Analytics, Data Science, and AI projects. Training starts from core Python concepts (variables, data types, operators, loops, functions, and error handling) and quickly moves into real-world data handling using NumPy and Pandas. You'll learn how to read and clean datasets (CSV/Excel/JSON), handle missing values, perform filtering and grouping, create features, and automate analysis tasks. The module also includes data visualization using Matplotlib and Seaborn, helping you convert data into clear insights.

To strengthen learning, Brainwave AI provides short notes, PPTs, practice exercises, and regular tests, along with mini tasks and dataset-based assignments. By the end of the Python module, participants will be able to write clean Python code, analyze real datasets confidently, and build a strong base for Machine Learning, Power BI, NLP, Web Scraping, and Streamlit projects used later in the internship.

# Why Python at Brainwave AI?

Learning Python at Brainwave AI means going beyond basic syntax and focusing on real-world, career-oriented applications. The Python program is designed specifically for Data Analytics, Data Science, and AI, ensuring that learners gain practical skills that are directly applicable to industry projects. Training follows a hands-on, project-driven approach, where concepts are taught through live coding, real datasets, and problem-solving, not just theory.

Brainwave AI provides structured course material, concise short notes, PPTs, practice exercises, and regular assessments to support learning and quick revision. Learners also gain exposure to NumPy, Pandas, data visualization, web scraping basics, and Python-based analytics workflows, creating a strong foundation for advanced modules like Machine Learning, NLP, Power BI integration, and Streamlit deployment. With expert mentorship from experienced IT professionals, continuous guidance, and an industry-recognized certification, Python training at Brainwave AI helps learners build confidence, strong coding skills, and a clear pathway toward analytics and AI careers.

## Course Contents

- ❖ **Python Programming at Brainwave AI** is designed to build a **strong, practical foundation** for Data Analytics, Data Science, and AI applications.
- ❖ **Introduction to Python**  
Python overview, installation, IDE setup (VS Code / Jupyter), and program structure.
- ❖ **Python Basics**  
Variables, data types, operators, input/output, and basic syntax.
- ❖ **Control Flow Statements**  
Conditional statements (`if-else`) and loops (`for`, `while`) with real examples.
- ❖ **Functions & Modular Programming**  
User-defined functions, arguments, return values, and code reusability.
- ❖ **Data Structures in Python**  
Lists, tuples, sets, dictionaries, and their real-world use cases.
- ❖ **String Handling & File Operations**  
String methods, file reading/writing, and text data processing.

### ❖ **Exception Handling & Debugging**

Error handling using `try-except`, debugging techniques, and best practices.

### ❖ **Working with NumPy**

Arrays, mathematical operations, indexing, slicing, and performance optimization.

### ❖ **Data Analysis with Pandas**

DataFrames, data loading (CSV/Excel/JSON), filtering, grouping, merging, and aggregation.

### ❖ **Data Cleaning & Preprocessing**

Handling missing values, duplicates, outliers, and data transformation.

### ❖ **Data Visualization**

Plotting with Matplotlib and Seaborn (line, bar, scatter, histogram, boxplot).

### ❖ **Introduction to Web Scraping**

Collecting data from websites using Python libraries.

### ❖ **Mini Projects & Practice Exercises**

Dataset-based tasks to apply Python concepts in real scenarios.

### ❖ **Python for Analytics & AI Readiness**

Using Python as a foundation for Machine Learning, NLP, Power BI integration, and Streamlit apps.



## **Mentor: Bijay Chowdhury**

Bijay Chowdhury brings over 30 years of teaching and academic experience to the field of Artificial Intelligence and emerging technologies. As the Founder & Lead Mentor at Brainwave AI, he has dedicated his career to blending strong theoretical foundations with hands-on, lab-driven learning. He has published and written numerous research papers, contributed to theses and academic research, and authored multiple books on Artificial Intelligence and allied domains, making complex concepts accessible to students, educators, and professionals. His mentorship philosophy emphasizes ethical AI, real-world problem solving, project-based learning, and industry readiness, ensuring interns gain not only technical skills but also clarity, confidence, and long-term career direction in AI, Machine Learning, NLP, Generative AI, and Time Series Analytics.

## Key Highlights

- ❖ 30+ years of teaching & academic mentoring
- ❖ Extensive research publications (papers, thesis)
- ❖ Author of multiple AI-focused books
- ❖ Strong focus on practical labs, projects, and ethics
- ❖ Proven mentor for student internships and career growth

## For Further Details, Contact:



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