

Basic Topics:

1. Introduction to Python

- What is Python?
- Installing Python
- Python Shell vs. Scripting
- Python IDEs

2. Data Types and Variables

- Integers, Floats, Strings, Booleans
- Type Conversion
- Variables and Assignment

3. Basic Operators

- Arithmetic Operators
- Comparison Operators
- Logical Operators

4. Control Structures

- Conditional Statements (`if`, `elif`, `else`)
- Loops (`for`, `while`)
- `break`, `continue`, and `pass`

5. Basic Data Structures

- Lists
- Tuples
- Sets
- Dictionaries

6. Functions

- Defining and Calling Functions
- Arguments and Return Values
- Local and Global Variables

7. Modules and Packages

- Importing Modules
- Exploring the Standard Library

Intermediate Topics:

1. List Comprehensions

2. Functions (continued)

- Lambda Functions
- `*args` and `**kwargs`
- Decorators
- Generators

3. File Handling

- Reading and Writing Files
- Working with Directories
- Exception Handling during I/O

4. Error and Exception Handling

- `try`, `except`, `finally`
- Custom Exceptions

5. Classes and Object-Oriented Programming (OOP)

- Classes and Objects
- Inheritance
- Polymorphism
- Encapsulation

6. Intermediate Data Structures

- Stacks, Queues, Linked Lists (using collections module)

7. Regular Expressions

8. Working with External Libraries

- `pip` and Package Management
- Common Libraries: `requests`, `numpy`, `pandas`

Advanced Topics:

1. Advanced OOP Concepts

- Metaclasses
- Decorators in Classes
- Abstract Base Classes

2. Multithreading and Multiprocessing

3. Networking and APIs

- Building APIs with Flask or Django
- Consuming APIs with Python

4. Databases

- SQLite, MySQL, PostgreSQL with Python
- ORMs like SQLAlchemy

5. Advanced Libraries and Frameworks

- Web Development (Django, Flask)
- Data Science (SciPy, Matplotlib)
- Machine Learning (TensorFlow, Scikit-Learn)

6. Memory Management and Optimization

7. Python C Extensions

8. Asynchronous Programming

- Async/Await
- Asynchronous Frameworks (e.g., FastAPI)

Note:

- Theory and explanation through coding
- Real time scenarios
- Only charge \$25/- registration fees for all courses

JP AI-INTERGRATION