

DexNotePro: Python Foundations

□ About This Course

Welcome to **Python Foundations**, your gateway into the world of coding!

Python is known for its simplicity, power, and versatility — from web apps to AI, automation, and beyond.

This course takes you from zero knowledge to writing real code and solving problems like a pro.

By the end, you'll:

- Understand Python syntax, logic, and structures
 - Write your own programs and mini projects
 - Use Python for data, automation, and AI basics
 - Build confidence to learn advanced frameworks later
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Module 1: Getting Started with Python

What Is Python?

Python is a high-level, beginner-friendly language that reads almost like English. It's used by Google, NASA, and Netflix because it's powerful yet easy to maintain.

Why Learn Python?

- Beginner-friendly syntax
- Cross-platform
- Huge community & libraries
- Ideal for AI, ML, and data science

Try This 🔧

1. Visit python.org and install Python.
2. Open your terminal and type:

```
3. python --version
```

You've just verified Python on your system!

Module 2: Writing Your First Code

Your First Program

Open **IDLE** or **VSCode**, create a file `hello.py`, and type:

```
print("Hello, DexNotePro Learner!")
```

Run it. You just wrote your first line of code.

Understanding Print Statements

The `print()` function displays text or data on the screen. You can print strings, numbers, and variables easily.

Try This ☐

1. Modify your code to print your name and age.
 2. Combine text and variables in a single print statement.
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Module 3: Variables and Data Types

Variables store information in memory.

Example:

```
name = "Ishaan"  
age = 16  
is_student = True
```

Data Types

- `str` → Text ("Hello")
- `int` → Numbers (10)

- `float` → Decimal (3.14)
- `bool` → True/False

Try This 🔍

Create 3 variables — a number, a sentence, and a boolean — then print all of them with `print()`.

Module 4: Operators and Input

Operators

- Arithmetic: `+`, `-`, `*`, `/`, `**`
- Comparison: `==`, `!=`, `<`, `>`
- Logical: `and`, `or`, `not`

Taking Input

```
name = input("Enter your name: ")
print("Welcome, ", name)
```

Try This ⚙️

Write a small program that asks for two numbers and prints their sum.

Module 5: Conditional Logic (If–Else)

Logic decides your program's path.

Example:

```
age = int(input("Enter your age: "))
if age >= 18:
    print("You can vote!")
else:
    print("You're too young to vote.")
```

Try This 💡

Create a “Grade Checker” program that outputs A/B/C/F based on marks.

Module 6: Loops (For & While)

For Loop

```
for i in range(5):  
    print("DexNote", i)
```

While Loop

```
count = 0  
while count < 5:  
    print("Learning Python!")  
    count += 1
```

Try This ↻

Write a loop that prints all even numbers from 1–20.

Module 7: Functions

Functions organize your code into reusable blocks.

Example:

```
def greet(name):  
    print("Hello, ", name)  
  
greet("DexNotePro")
```

Try This ↴

Make a function that calculates the area of a rectangle.

Module 8: Lists, Tuples, and Dictionaries

Lists

```
fruits = ["apple", "banana", "cherry"]
print(fruits[1])
```

Dictionaries

```
student = {"name": "Ishaan", "grade": "A"}
print(student["name"])
```

Try This ☐

Create a list of 5 friends' names and print them one by one.

Module 9: Mini Projects

1. Simple Calculator

```
a = int(input("Enter first number: "))
b = int(input("Enter second number: "))
op = input("Enter operator (+, -, *, /): ")
if op == '+':
    print(a + b)
elif op == '-':
    print(a - b)
elif op == '*':
    print(a * b)
else:
    print(a / b)
```

2. Password Strength Checker

Ask user for a password and check if it's long, has numbers, and symbols.

3. Dice Simulator

Use the `random` module to roll dice and display results.

Module 10: Next Steps & Projects

Congratulations! 🎉 You've built a foundation in Python.
Here's what to explore next:

- Learn libraries like `numpy`, `matplotlib`, `pandas`
- Try beginner projects (quiz app, to-do list, chatbot)
- Explore AI & automation using Python

Try This 🚀

- Build a “To-Do App” that lets users add, delete, and view tasks in Python.
- Automate something small on your PC using a script!

Completion Reminder

✓ You've finished the **Python Foundations** course!
Visit **DexNotePro** and **mark your course as complete** to unlock your next level.

🔗 <https://ishaan7india.github.io/DexNotePro/>