ARMOURINFOSEC®

Hands-On Cyber Security Training · Indore, India

Python for Security Professionals

Course Syllabus

Master Python programming from beginner to advanced concepts, including automation, object-oriented programming, modules, file handling, debugging, advanced data structures, and practical scripting techniques for cybersecurity and ethical hacking.

// COURSE INFORMATION

Course Information

DURATION	1 Months / 4 Weeks / 30 Hours
LEVEL	Beginner to Advanced
MODULES	14
FORMAT	Hands-on Labs / Hybrid (Online + Indore Classroom)

// COURSE OVERVIEW

Course Overview

The Python Programming course is designed for beginners, cybersecurity enthusiasts, ethical hackers, and developers who want to learn Python programming for automation, scripting, and security-related tasks. This course covers Python installation and setup, data structures, conditional statements, loops, functions, OOP, file handling, exception management, modules, built-in functions, debugging, regular expressions, and advanced data structures with a focus on cybersecurity applications.

// LEARNING OBJECTIVES

Learning Objectives

- Write Python programs from scratch for automation and scripting
- Build reusable functions and object-oriented applications
- Handle files, directories, and system operations programmatically
- Debug and troubleshoot Python applications effectively
- Work with advanced modules and data structures
- Develop custom security tools and automation scripts
- Use Python for cybersecurity reconnaissance and enumeration
- Automate repetitive security tasks and workflows
- Build network tools using socket programming
- Apply Python in ethical hacking and penetration testing scenarios

// PREREQUISITES

Prerequisites

- Basic computer knowledge
- Familiarity with operating systems (Linux recommended)
- No prior programming experience required
- Interest in cybersecurity and automation

// MODULE BREAKDOWN

Module Breakdown

01 Python Environment Setup

- Installing Python on Linux
- Selecting an IDE
- PyCharm Setup and Configuration
- Jupyter Notebook Setup
- Managing Virtual Environments
- pip Package Manager
- Project Structure Best Practices

02 Python Objects & Data Structure Basics

- Numbers (Integers, Floats)
- Strings and String Manipulation
- Print Formatting
- Lists and List Operations
- Dictionaries and Key-Value Pairs
- Tuples and Immutability
- Sets and Set Operations
- Booleans and Truth Values

03 Python Comparison Operators

- Greater Than Operator
- Less Than Operator
- Equal To Operator
- Not Equal To Operator
- Chained Comparisons
- Logical Operators (and, or, not)
- Identity Operators (is, is not)
- Membership Operators (in, not in)

04 Python Statements & Control Flow

- If Statements
- Elif Statements
- Else Statements
- Nested Conditionals
- For Loops

- While Loops
- Range Function
- List Comprehensions
- Loop Control (break, continue, pass)

05 Methods & Functions

- Understanding Methods
- Defining Functions
- Function Arguments and Parameters
- Return Values
- *args and **kwargs
- Lambda Expressions
- Nested Statements and Functions
- Scope (Local, Global, Enclosing)
- Map, Filter, and Reduce

06 Object-Oriented Programming (OOP)

- Understanding Objects
- Defining Classes
- Class Attributes and Methods
- Instance Methods
- Inheritance
- Method Overriding
- Special/Magic Methods (__init__, __str__, __repr__)
- Encapsulation and Polymorphism

07 Input/Output File Handling

- File Write Mode
- File Append Mode
- File Read Mode
- Writing Files
- Reading Files Line by Line
- Closing Files
- Context Managers (with statement)
- Working with CSV and JSON Files

08 Error & Exception Handling

- Try Block
- Except Block
- Finally Block
- Else Clause
- Custom Exceptions
- Exception Chaining
- Handling Multiple Exceptions
- Debugging Techniques

09 Modules & Packages

- OS Module
- Socket Module
- Python Packages
- Importing Modules
- Creating Custom Modules
- from...import Syntax
- Package Structure (__init__.py)
- Popular Security Packages

10 Built-in Functions

- Map Function
- Filter Function
- Reduce Function
- Zip Function
- Enumerate Function
- All and Any Functions
- Complex Numbers
- Sorted and Reversed
- Type Conversion Functions

11 Advanced Python Modules

- Collections Module
- Counter
- Defaultdict
- OrderedDict
- Namedtuple
- Datetime Module
- PDB Debugger
- Timeit Module
- Regular Expressions (re module)
- StringIO Module

12 Advanced Python Data Structures

- Advanced Numbers and Math
- Advanced String Operations
- Advanced Set Operations
- Advanced Dictionary Techniques
- Advanced List Manipulation
- Generators and Iterators
- Data Classes
- Property Decorators

13 Python Automation for Security

- Automating Repetitive Tasks
- File System Automation

- Log Parsing and Analysis
- Network Reconnaissance Scripts
- Web Scraping for OSINT
- Subprocess Module for System Commands
- Threading and Multiprocessing
- Scheduling Automated Tasks

14 Security Tool Development

- Socket Programming for Networking
- Building Port Scanners
- HTTP Requests and API Interaction
- Packet Manipulation with Scapy
- Password Utility Scripts
- Hash Generation and Verification
- Custom Exploit Development Basics
- Security Tool Architecture

// TOOLS & HANDS-ON LABS

Tools & Hands-On Labs

- Pre-configured Python development environment (Linux)
- PyCharm and Jupyter Notebook IDE setup
- Target machines for security tool testing
- Network lab for socket programming practice
- CTF challenges solvable with custom scripts
- Security tool development exercises
- Automation and scripting workflow labs

// TRAINING MODE

Training Mode

Every Armour Infosec course runs as a unified programme delivered in two parallel modes — the same curriculum, the same trainers, the same certification, regardless of how you join.

- ✓ Online Live Classes — real-time, instructor-led, fully interactive sessions
- ✓ On-Premise Classroom Training — in-person at our Indore centre (Sudama Nagar)
- ✓ Both modes run concurrently in every batch; switch between them as your schedule needs
- ✓ Same syllabus, lab access, and certification track for online and on-premise students

// CERTIFICATIONS & CAREER OUTCOMES

Certifications & Career Outcomes

This course aligns with industry-recognised certifications and prepares graduates for offensive-security, application-security, and infrastructure-security roles.

- Supports OSCP+ scripting requirements
- CEH (Certified Ethical Hacker)
- PCEP (Python Certified Entry-Level Programmer)

- PCAP (Python Certified Associate Programmer)
- Foundation for exploit development courses

// ENROL WITH ARMOUR INFOSEC

Enrol With Armour Infosec

Reach out to discuss enrolment, batch schedule, and lab access. Our Indore training centre runs both in-person and live online cohorts with placement assistance.

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