PY-PROG: Python Programming

Course Overview

The PY-PROG: Python Programming course is a comprehensive foundational syllabus designed to take students from absolute programming beginners to capable developers. It balances core programming concepts with practical application using Python 3.

Course Description

The PY-PROG: Python Programming course introduces students to the fundamentals of computer programming using the clear and highly popular Python language. Participants learn to write clean, efficient code by exploring basic syntax, logical execution blocks, and modern object-oriented principles. The curriculum focuses heavily on hands-on labs, transforming analytical problem-solving into production-ready scripts.Key Highlights :Target Audience: Complete beginners, shifting professionals, and aspiring data engineers.Prerequisites: Basic computer operation skills; no prior coding knowledge required.Primary Focus: Building scalable logic, handling data structures, and debugging errors.

Learning Curriculum

Module 1

Introduction & Environment Setup

Python overview: Introduction to language features and use cases.Environment installation: Setting up tools like VS Code or IDLE.First script: Writing and running a standard "Hello World" application.Basic I/O: Accepting user keyboard input and displaying terminal output

Module 2

Language Fundamentals

Variables: Memory assignment syntax and standard naming conventions.Data types: Working with Integers, Floats, Strings, and Booleans.Operators: Using arithmetic, comparison, logical, and assignment operations.Type casting: Converting variables between explicit data types

Module 3

Control Flow & Iteration

Conditionals: Evaluating logical paths using if, elif, and else statements.Loops: Automating repetitive code using while and for iterations.Loop control: Changing loop behaviors with break, continue, and pass

Module 4

Core Data Collections

Lists: Indexing, slicing, appending, and list comprehensions.Tuples: Working with immutable sequences and tuple assignments.Dictionaries: Managing key-value pairs, insertion, and key retrieval.Sets: Handling unique elements through unions, intersections, and differences

Module 5

Modular Programming & Functions

Function definitions: Reusable blocks using the def keyword.Arguments: Passing positional, keyword, default, and variable-length arguments (*args, **kwargs).Scope: Differentiating local variable scope from global program scope.Built-in modules: Importing standard libraries like math, os, and datetime

Module 6

Error Handling & File I/O

File handling: Opening, reading, writing, and appending text or CSV files.Exception handling: Catching errors using try, except, and finally blocks.

Module 7

Object-Oriented Programming (OOP)

Classes & Objects: Defining blueprints and instantiating custom objects.OOP Pillars: Implementing foundational concepts like inheritance and polymorphism

© 2026 Proasia Upskilling Sdn Bhd | www.proasia.my