

# PYTHON ESSENTIALS [FASTRACK]

**Duration: 3 days; Instructor-led | Virtual Instructor-led**

## WHAT YOU WILL LEARN

This Python Essentials course is a transformative three-day journey crafted to immerse you in the world of Python programming. Unlike most courses in Malaysia, which often focus on older versions of Python in a strictly academic context, our course is dynamically designed to address the latest changes and practical implementations in Python.

We pride ourselves on offering a curriculum not just taught but brought to life by industry experts with over 30 years of development experience. This course is your gateway to mastering Python with a blend of theory and hands-on practice, ensuring you are well-equipped to navigate and utilize the language in real-world scenarios.

## COURSE OBJECTIVES

By the end of this course, participants will be able to:

- Understand and apply Python logic and algorithms.
- Adopt and implement efficient development processes.
- Code proficiently in Python.
- Utilize various Integrated Development Environments (IDEs).
- Implement loops, functions, and recursion.
- Work with filing systems and data acquisition.
- Navigate operating system necessities.
- Learn and apply new Python techniques.
- Integrate external libraries, including C libraries.
- Engage in image processing for Optical Character Recognition (OCR).

## PREREQUISITES

Participants are expected to have:

- Access to two screens (For online virtual training only).
- A steady webcam setup (For online virtual training only).
- Internet connection with at least 1 MBPS speed.
- A Google email address OR administrative rights to install Anaconda and python.
- libraries on the go (either one would do).
- Basic understanding of uploading, downloading, and managing files.
- Familiarity with local file system operations.
- Willingness to learn and have fun learning.

## COURSE OUTLINE

### Module 1: Introduction to Python

- Logic and Algorithm Basics
- Overview of the Programming World
- Installing Python and Setting Up the Environment
- Integrated Development Environments (IDEs): IDLE, Notebooks, Google's Colab

### Module 2: Core Concepts: Variables and Data Types

- Understanding Variables in Python
- Basic Data Types and Their Operations
- Variables and Script Updates
- Quizzes and Practical Exercises

### Module 3: Numeric in Python

- Understanding Numbers and Basic Arithmetic
- Floats, Modulo Operations, and Order of Operations
- Introduction to Python's Math Module
- Hands-On Project and Quizzes

### Module 4: String Manipulation

- Basics of Handling Text in Python
- String Methods and Operations
- Coding Exercises: Text Manipulation and Correction
- Practical Project on String Handling

### Module 5: Conditional Logic and Flow Control

- Understanding Booleans and Comparison Operators
- Implementing 'if' Statements
- Logical Operators and Their Applications
- Coding Challenges and Quizzes

### Module 6: Data Structures in Python

- Lists, Dictionaries, and Their Operations
- Advanced Methods for List Manipulation
- Practical Projects Involving Data Structures

### Module 7: Loops and Functions

- Introduction to Loops: 'While' and 'For' Loops
- Deep Dive into Python Functions
- Exploring Variable Scope, Keyword Arguments, and Default Parameters
- List Comprehensions and Practical Exercises

**Module 8: Practical Application and External Libraries**

- Implementing Recursion
- Data Stream Conversion Techniques
- Data Acquisition Methods
- Utilizing External Libraries for Practical Applications
- Projects: Graphic Overview and Data Extraction for Historical Stocks

**Module 9: Advanced Processing Techniques**

- Optical Character Recognition (OCR)
- Integrating External C Libraries
- Advanced String Formatting with f-strings
- Web Scraping Essentials
- Error Handling and Management

**Module 10: Operating System Utilities and File Handling**

- Utilizing OS Utilities in Python
- File Reading and Writing Techniques
- Structured File Reading Methods
- Practical Exercises on File Handling

**Module 11: New Features in Python 3.10 and 3.11**

- Exploring F Strings and Customizations
- Understanding and Implementing the 'Switch' Statement
- Optimizations
- I/O Read/Write Parallelization Techniques

This comprehensive outline ensures a rich learning experience, blending the latest Python features with practical skills and real-world applications. Join us to elevate your Python proficiency in an engaging, expert-led environment!