Title: Basic + Intermediate Python Duration: 5 days

Program objectives

Some of the key skills you will gain upon completion of this program include:

- Basic Language Syntax
- Object Oriented Features in Python
- Exception Handling
- Regular Expression
- Working with inbuilt database support (SQLite)
- Itertools and Collections framework
- Threading
- Python Decorators
- XML Parsing

Prerequisite

This course is for Intermediate to Expert Level Developers. The participants should have prior exposure to Basic Python programming language.

Audience

For whom Python is?

IT folks who want to excel or change their profile in a most demanding language which is in demand by almost all clients in all domains because of below mentioned reasons-

Who use Python?

- Google makes extensive use of Python in its web search system, and employs Python's creator Guido van Rossum.
- The YouTube video sharing service is largely written in Python.
- Disney uses Python in many of their creative processes.
- Mozilla uses Python to explore their extensive code base and releases tons of open source packages built in python.
- Dropbox file hosting service is implemented using Python, Guido van Rossum now working here.

- The popular Bit Torrent peer-to-peer file sharing system is a Python program.
- Intel, Cisco, Hewlett-Packard, Seagate, Qualcomm, and IBM use Python for hardware testing.
- JPMorgan Chase, UBS, Getco, and Citadel apply Python for financial market forecasting.
- NASA, Los Alamos, JPL, use Python for scientific programming tasks.
- iRobot uses Python to develop commercial robotic vacuum cleaners.
- The NSA uses Python for cryptography and intelligence analysis.
- And Many More.

Can I learn Python if I'm not from programming background?

Yes

Anyone can learn Python, whether they are from Networking, Administration, manual testing or may be from IT support. It is a big myth that if guys don't know C or C++ then he can't learn Python.

Few of them are specified at: https://www.python.org/about/success/

Who can learn Python?

In short anyone.

Automation Engineers
Data analysts and scientist
Quality Analysts
System Administrator
Web Developers, Networking Professionals
Software Developers
Hadoop programmers, Desktop Applications
Robotics Engineers, Hardware level developers
And Many Many More …

Set up Requirements

Computer with the following software

Operating System: Unix OS Ubuntu 16.04 / CentOS 7.0/ Window XP/Vista/7/8/10
python 2.7.13 on Anaconda Notebook Tools
Sublime3 Text Editor
Eclipse with pydev plugins (Recommended for Project Work)

Note: Training Session include 90 % Hands on Session and 10% Interactive Discussion

Day Wise Break Up

Day	**Modules**	**Topics**

Day 1	**Module 1**	**Quick Overview to Python [Rapid Questions Round / Interactive Session]**
		Dynamic Typing, Object Types
		Complex Object Type
		Operators
		Unbounded Integers
		Useful functions
		type()
		id()
		dir()
		help()
		chr()
		unichr()

	Module 2	Simple Program Using Basic Python Anaconda Installation /Sublime Text Editor / or Eclipse Pydev
	Module 3	Basic Language Construct ▪ Data types and Variables ▪ String type ▪ Format method ▪ Operators and Expressions ▪ Indentation

	Module 4	Data Structures Mutable and Immutable Data Structures 🗁◑List, Subscripting, Nested List 🗎◑Tuple, Use cases 🗏◑String Manipulation 🗐◑Dictionary with Case Study 🗄◑Use Cases and Assignment
	Module 5	Control Structure 🗁◑Indentation 🗎◑if elif else 🗏◑while 🗐◑for (nested) 🗄◑Use Cases and Assignments **Functions** User Define Functions 🗁◑global variable 🗎◑default arguments 🗏◑variable arguments *arg 🗐◑Multiple Variable Default Argument 🗄◑**kwarg ⌛◑Use Case Design Multiplier **Assignments** **Rapid Questions Round / Quiz** **Conclusion and Summary**

Day 2	**Module 6**	**Advance Built In Functions** Sequence Operation using ♋☽lambda ♌☽filter ♍☽map ♎☽reduce ♏☽sum/max/min ♐☽set ♑☽enumerate ♒☽sorted ♓☽reversed 🙰☽range/ xrange Operation Using 🗁☽List /Tuple Comprehension 🗎☽Dictionary Comprehension 🗏☽**Dictionary Use Case**
	Module 7	**Modules** User Define Modules Import Categories 1) using import 2) using from Built In Modules 1) math 2) os 3) sys 4) random 5) pickle / Unpickle (Object Serialization) 6) json etc

Day 3	**Module 8**	**Object Oriented Programming** - Classes and Objects - The “self” keyword - Methods and Attributes - Constructor and Destructor - Instance and static member - Class Inheritance - Built In Attributes - __private - public - _protected - Multiple Inheritance - Locking Attributes - Super keyword **Case Study** **Assignments** **Rapid Questions Round / Quiz**

	Module 9	**Files Objects and Methods**
		open()
		read(), readlines()
		write(), writelines()
		tell()
		using with statements
		Use Case using File Handling

	Module 10	**Exception Handling** Built in Exceptions exceptions module User Define Exceptions **Assignments** **Rapid Questions Round / Quiz** **Conclusion and Summary**

Day 4	**Module 11**	**Regular expressions** Pattern Writing Compiling Match/Search Group/Groups findall re.sub re.split Use Case using Regular Expression and Pattern
	Module 12	**File and Directory handling** Fileinput glob Regular Expression Case Study for Extraction of Data from Multiple Files and Generating Reports
	Module 13	**Itertools and Collections framework** imap/ ifilter /izip Iterator file iteration using map Overriding iterator functions Generator yield Use Case of yield **Assignments** **Rapid Questions Round / Quiz**
	Module 14	**Testing** Testing Fundamental Types of Testing Unittest Framework Run Test Write Unittest.TestCase for Python Code
Day 5	**Module 15**	**Python Debugging and Testing** Use of pdb Calling pytest through python py.test py.test --pdb **Assignments** **Rapid Questions Round / Quiz** **Conclusion and Summary**

	Module 16	**Threading** Processes & Threads Threading Life Cycle Logging Demon Thread Thread Synchronization Real Time Case Study using Multithreading
	Module 17	**Python Decorators** Introduction Types of Decorators User Define Decorators 1) Write a Trace Decorators using Python and trace any functions or Class methods 2) Built in Decorators 3) @classmethod 4) @staticmethod 5) @property
	Module 18	XML Parsing **Assignments** **Rapid Questions Round / Quiz** **Four Days Conclusion and Summary**