Course Design Document

Course Code	
Course Name	Python

Duration (in days)	15	Proficiency Level	Fundamental
Pre-requisites	None	Target Audience	Campus Hires

Learning Outcome

At the end of the program, participants will learn:

- To read and write simple Python programs
- To develop Python programs with conditionals and loops
- To define Python functions and call them
- To use Python data structures –- lists, tuples, dictionaries
- To do input / output with files in Python

Day wise Session Plan

Day	Unit	Objectives	Hours
1	Introduction to Python and Computer Programming	• Python – Introduction • OOPS basics	8
2	Data Types, Variables, Basic Input-Output Operations, Basic Operators	• Your first program • Python literals • Operators - data manipulation tools • Variables - data-shaped boxes • How to talk to computer?	8
3 & 4	Boolean Values, Conditional Execution, Loops, Lists and List Processing, Logical and Bitwise Operations	• Making decisions in Python • Python's loops • Logic and bit operations in Python • Lists - collections of data • Sorting simple lists - the bubble sort algorithm • Lists - some more details • Lists in advanced applications (List comprehension)	16
5 & 6	Functions, Tuples, Dictionaries, and Data Processing	• Writing functions in Python • How functions communicate with their environment? • Returning a result from a function • Scopes in Python • Tuples and dictionaries (deep on dictionary methods and data extraction in looped dictionary) • Special sequences, Sets	16
7 & 8	Modules, Packages, String and List Methods, and Exceptions	• Using modules • Some useful modules • What is package? • Errors - the programmer's daily bread • The anatomy of exception • Some of the most useful exceptions • Characters and strings vs. computers • Python's nature of strings • String methods • Strings in action	16

9 & 10	The Object-Oriented Approach: Classes, Methods, Objects, and the Standard Objective Features; Exception Handling, and Working with Files	• Basic concepts of object programming • A short journey from procedural to object approach • Properties • Methods • Inheritance - one of object programming foundations • Exceptions once again • Generators and closures • Processing files • Working with real files (All types of file handlers)	16
11	Regex	• Regular expressions • regex Functions • Regex Methods • Regex Metacharacters	8
12 & 13	External Libraries	• Requests Library (For Rest API Automation) • Subprocess • Time • Powershell script(basic) • Paramiko Library (For SSH Automation) • Selenium web driver (Page object module)	16
14	Testing Framework	• Robotframework • Robotframework-sshlibrary • Robotframework-seleniumLibrary	8
15	Data serialization (with JSON and Objects)	• Parse JSON - Convert from JSON to Python • Python read JSON file • Convert from Python to JSON • Writing JSON to a file • How to store/extract data in object • Serialization with Objects	8