

Python Course Contents:

1. Introduction (1 hour)
 - 1.1. What is python
 - 1.2. Why python, why not other languages
 - 1.3. The python console
 - 1.4. Python in linux and windows
 - 1.5. Simple operations
2. Strings (1 hour)
 - 2.1. String operations
 - 2.2. Simple input and output
 - 2.3. Type conversion
 - 2.4. Variables
 - 2.5. In-place operators
 - 2.6. Quiz on Strings
 - 2.7. Assignment on Strings
3. Control structures (1 hour)
 - 3.1. Boolean and comparisions
 - 3.2. If statements
 - 3.3. Else statements
 - 3.4. Boolean logic
 - 3.5. Operator precedence
 - 3.6. While loop
 - 3.7. Quiz on control structures
 - 3.8. Assignment on control structures
4. Lists (3 hours)
 - 4.1. List operations
 - 4.2. List functions
 - 4.3. Range
 - 4.4. For loop
 - 4.5. Quiz on lists
 - 4.6. Assignment on lists
5. Dictionaries and tuples (2 hours)
 - 5.1. Dictionaries operations
 - 5.2. Dictionaries functions
 - 5.3. Tuples
 - 5.4. List comprehensions
 - 5.5. String formatting
 - 5.6. Quiz on Dictionaries and tuples
 - 5.7. Assignment on dictionaries and tuples
6. Sets (1 hour)
 - 6.1. Sets operations
 - 6.2. Sets functions
 - 6.3. Quiz on sets
 - 6.4. Assignment on sets

7. Functions and modules (7 hours) (Check section 12 for modules and packages)
 - 7.1. Function arguments
 - 7.2. Returning from functions
 - 7.3. Comments and doc strings
 - 7.4. Functions as objects
 - 7.5. *args and **kwargs
 - 7.6. Closures
 - 7.7. Decorators
 - 7.8. Global
 - 7.9. Modules
 - 7.10. How to write your own module
 - 7.11. How to use existing modules
 - 7.12. The standard library and pip
 - 7.13. Quiz on Functions and modules
 - 7.14. Assignment on functions and modules
8. Functional programming (5 hours)
 - 8.1. Lambdas
 - 8.2. Map and filter
 - 8.3. Reduce
 - 8.4. Iterators and Generators
 - 8.5. Revisiting decorators
 - 8.6. Recursion
 - 8.7. Itertools
 - 8.8. Revisiting modules
 - 8.9. Quiz on functional programming
 - 8.10. Assignment on functional programming
9. Exceptions and file handling (5 hours)
 - 9.1. Exceptions
 - 9.2. Exception handling
 - 9.3. Finally
 - 9.4. Raising exceptions
 - 9.5. Assertions
 - 9.6. Opening files
 - 9.7. Reading files
 - 9.8. Writing files
 - 9.9. Working with files
 - 9.10. Quiz on Exceptions and file handling
 - 9.11. Assignment on Exceptions and file handling
10. Object oriented programming (10 hours)
 - 10.1. What is a class and object
 - 10.2. Encapsulation, does python support encapsulation? How to achieve it?
 - 10.3. Inheritance, does python support inheritance?, types of inheritance
 - 10.4. Abstraction, does python support abstraction?, how to achieve it?
 - 10.5. Polymorphism, does python support polymorphism? How to achieve it?

- 10.6. Does python support Over riding, over loading, operator overloading
- 10.7. Magic methods
- 10.8. Class and static methods
- 10.9. What is the use of python property feature?
- 10.10. Creating your own exception classes
- 10.11. Quiz on Object oriented programming
- 10.12. Assignment on object oriented programming
- 11. Regular expressions (5 hours)
 - 11.1. Simple functions
 - 11.2. Metacharacters
 - 11.3. Quantifiers
 - 11.4. Character classes
 - 11.5. Groups
 - 11.6. Escape sequences
 - 11.7. Modifiers
 - 11.8. Quiz on regular expressions
 - 11.9. Assignment on regular expressions
- 12. Modules and Packages (5 hours)
 - 12.1. How to write a package
 - 12.2. How to write a sub package
 - 12.3. What is the difference between package and module
 - 12.4. Writing a package and making it installable
 - 12.5. Simple project – Building a package
- 13. Miscellaneous concepts (3 hours)
 - 13.1. The zen of python
 - 13.2. PEP
 - 13.3. Creating virtual environment
 - 13.4. Tuple unpacking
 - 13.5. Packages
 - 13.6. Creating your own packages and installing
 - 13.7. Quiz on miscellaneous concepts
 - 13.8. Assignment on miscellaneous concpets
- 14. Working with MySQLdb using Python (2 hours)
 - 14.1. MySQLdb module – connect
 - 14.2. Create, Read, Update and Delete records using MySQLdb module
 - 14.3. Fetching one record, many records from mysql table
 - 14.4. Quiz on Working with MySQLdb using Python
 - 14.5. Assignment on working with MySQLdb using Python

Assignments and PPTs for all the above topics are provided. Solutions of all the assignment questions are explained.