Python Programming language  
• Python 2 vs Python 3  
• Python vs other languages  
• Installing python and your first python program  
• How python runs

Module 2: Fundamentals of Python   
• Interpreter and compilers  
• Semantics, Syntax, and Lexing  
• Keywords  
• Intro to REPL  
• Virtual Environments in python

Module 3: Literals, Variables and Operators   
• Operators (Numeric operator, floating point accuracy, Unary and Bitwise Operators, Boolean operators comparison operators, Operator Priority)  
• Comments  
• Strings and its operators  
• Booleans and numbers (Integers, floats, scientific notations)

Module 4: Input/Output Operations   
• Typecasting  
• Input function  
• Print function  
• User Input from within python and through command line

Module 5: Data types   
• Strings, string function, methods and slicing  
• Introduction to List  
• List Functions and Methods  
• Nested List  
• Intro to tuples and dictionaries  
• Dictionary Methods  
• Sets

Module 6: Python Flow Control  
• If else and elif  
• Pass and range keyword  
• While and for loop and else  
• Nesting Loops and Conditionals  
• Break and continue  
• List comprehension

Module 7: Introduction to Functions  
• Creating Functions  
• Parameters and Arguments  
• Recursion  
• Anonymous Function, lambdas  
• Global, local and non-local  
• Python Scopes  
• Shadowing (Hiding Names)

Module 8: File Handling, Exception Handling  
• Reading and writing to Files  
• Context Managers  
• Python Exception  
• Exception Handling

Module 9: Modules and Packages[1hr]  
• Modules  
• Variants of modules  
• \_\_name\_\_  
• Packages in Python

Module 10: Basic Introduction to Classes and Objects [2hr]  
• Object Oriented Programming  
• Python Class  
• Python Inheritance  
• Super keyword

Module 11: Iterators and Generators  
• Iterators  
• Yield Keyword  
• Generators  
• Generators use cases

Module 12: Comprehensions  
• List Comprehension  
• Set Comprehension  
• Dictionary Comprehension  
• Generator Comprehension  
• Nested Comprehension

Module 13: Decorators  
• Higher Order Function  
• Introduction to decorators  
• Decorators with arguments  
• Function Decorators and Class decorators

Module 14: Object Oriented Programmings  
• OOP Concepts: Inheritance, Encapsulation, Polymorphism, Abstraction  
• Class Attributes and methods Instances  
• Inheritance: Overloading and Overriding, Single and multiple Inheritance  
• \_\_init\_\_, \_\_str\_\_ methods  
• Mixins  
• Name Mangling  
• Introspections  
• Abstract Class vs method overloading  
• Composition vs inheritance

Module 15: Exception Handling  
• Exception Handling  
• Creating And serving Exception  
• User Defined Exceptions  
• Raising exceptions

Module 16: Accessing Database with python  
• Relational Database  
• CRUD Application with Postgres (or MySQL)

Module 17: Introduction to Django  
• What is Django  
• The MVT Pattern  
• Setting up Django and Django Files  
• Crud with Django

Module 18: PEP and some design Patterns  
• Introduction to PEP  
• PEP 8, 20,257  
• Some other important PEPs  
• Object-oriented design principles and the concept of design patterns  
• Some Design Patterns (Single Ton, Factory, Façade, Proxy, Observer, Command, etc)