INTRODUCTION

What's python?
Why do people use python?
What's python good for?
Python portability
Downloading and installing
Environment Setup and path settings
Difference between Python versions
Where to find documentation, online help and dir
Setting up the IDE and various IDEs.
Creating the first python program

- Understanding the .py extension
- Understanding the .pyc extension

How to run the python programs.

- Using the interpreter interactively
- Running standalone scripts

Types and Operators:

Data types and Variables
Getting User Input with input()
Converting Values
String operators and expressions
Slicing & String operators
Math operators and expression
Command line parameters
Formating and Printing the string

CONTAINERS/DATA STRUCTURES:

Lists
Tuple
Dictionary
Set
Utilities:

- Creating and Using Lists/Dictionaries/Sets/Tuples
- Indexing, Slicing and Concatenating Lists/Dictionaries/Sets/Tuples
- Adding & Deleting Element in Lists/Dictionaries/Sets/Tuples
- Utilities of Lists/Dictionaries/Sets/Tuples
- Using Nested Sequences
- Comprehensions of Lists/Dictionaries/Sets/Tuples

Collections
Stacks
Queues
Ordered Dictionaries
Exercise Problems

Control flow Statements:

General Syntax Concepts
Expressions
Print
If Selections
Python Syntax Rules
While Loops
For Loops
Break, Continue, Pass, And The Loop Else
Comprehensions And Iterations
Loop Coding Techniques
Comprehensive Loop Examples

Basic Coding Gotchas

File Handling:
What is file?
Opening file Various file modes
Reading data from file
Writing data to a file
Closing a file Replacing the contents of file
Working with Directories
Handling I/O functions Open(),read(),write(),close(),read Line() seek(),tell(),makedirs(),get cwd() with example programs

FUNCTIONS
Function Basics
Scope Rules In Functions
Built-in Functions
User Defined Functions
Arguments Default Arguments
Functions vs Method
More On “Global” (And “Nonlocal”)
More On “Return”
More On Argument Passing
Special Argument Matching Modes
Generator Expressions And Functions
Function Design Concepts
Functions Are Objects: Indirect Calls
Function Gotchas
Optional Case Study: Set Functions

Lambda Functions/Anonymous Functions:
Filter() Map() Reduce()
Generators and Decorators:
Purpose of generator Creation of generator
Creation of decorators How they are deferent from normal functions

MODULES:
Module Basics
Module Files Are A Namespace
Name Qualification
Import Variants
Reloading Modules
Package Imports
Odds And Ends
Module Design Concepts
Modules Are Objects: Metaprograms
Module Gotchas
Optional Case Study: A Shared Stack Module
copy vs deep copy
Single and multi-line comments
Installing new packages
Updating existing packages
Uninstalling a package

CLASSES
Oop: The Big Picture
Class Basics

A More Realistic Example
Using The Class Statement
Using Class Methods
Customization Via Inheritance
Specializing Inherited Methods
Operator Overloading In Classes
Namespace Rules: The Whole Story
Oop Examples: Inheritance And Composition
Classes And Methods Are Objects
Odds And Ends
New Style Classes
Class Gotchas
Optional Case Study: A Set Class
Summary: Oop In Python

EXCEPTIONS
Exception Basics
First Examples
Exception Idioms
Exception Catching Modes
Class Exceptions
Exception Gotchas

ADVANCED TOPICS
Unicode Text And Binary Data
Managed Attributes
Metaclasses
Context Manager

DATABASES AND PERSISTENCE
Databases and Persistence
Object Persistence: Shelves
Storing Class Instances
Pickling Objects Without Shelves
Using Simple Dbm Files
Python Sql Database Api
Persistence Odds And Ends

Web scraping and Handling data:
Handling the URLs
Download the data from Web World
Data cleansing
Data processing
Data extraction
Export and write data into different files

Data Analytics:
Working with Data frames
Load data into data frames from different data sources
How to analyze the data in frames
Export data into files
visualize the data in frames
Model Evaluation
Predicting the future values

Data Visualization:
Analyze the data with visuals

Represent data in different graphs/charts
Monitor the data flow
Working with Seaborn, Matplotlib

Introduce Data Science:
Data science life cycle
Supervised learning
Unsupervised learning
Classification
Regression

Web development:
Introduction to Flask frame work
Flask architecture
Provide micro services from flask