



AI Workshop Course Content

Techfest is the annual science and technology festival of IIT Bombay.
Following is the basic outline of the **in-person** workshop that would be happening at
Techfest in IIT Bombay

An Introduction to Python -----

1. Introductory Remarks about Python
2. Strengths and Weaknesses
3. A Brief History of Python
4. Python Versions
5. Installing Python
6. Environment Variables
7. Executing Python from the Command Line
8. IDLE
9. Editing Python Files
10. Getting Help
11. Dynamic Types
12. Python Reserved Words
13. Naming Conventions

Basic Python Syntax-----

1. Basic Syntax
2. Comments
3. String Values
4. String Operations
5. The format Method
6. String Slices
7. String Operators
8. Numeric Data Types
9. Conversions
10. Simple Input and Output
11. The print Function

Language Components -----

1. Control Flow and Syntax
2. Indenting
3. The if Statement



4. Arithmetic operators
5. Assignment operators
6. Relational Operators
7. Logical Operators
8. True or False
9. The while Loop
10. Break, continue and pass the statement
11. For loop

Collections-----

1. Introduction
2. Lists
3. Tuples
4. Sets
5. Dictionaries
6. Sorting Dictionaries
7. List Comprehension
8. Nested List Comprehension
9. Dict Comprehension
10. Iterators
11. Generators

Functions-----

1. Defining Your Own Functions
2. Parameters
3. Function Documentation
4. Keyword and Optional Parameters
5. Default Parameters
6. Passing Collections to a Function
7. Variable Number of Arguments
8. Scope
9. Passing Functions to a Function Decorator
10. Lambda

Modules-----

1. Standard Modules - sys
2. Standard Modules - math
3. Standard Modules – time
4. Standard Modules - os
5. The dir Function



Exceptions-----

1. Errors
2. Run-Time Errors
3. The Exception Model
4. Exception Hierarchy
5. Handling Multiple Exceptions
6. raise
7. assert
8. Writing Your Own Exception Classes

Input-output-----

1. Data Streams
2. Creating Your Own Data Streams
3. Access Modes
4. Writing Data to a File
5. Reading Data From a File
6. Additional File Methods
7. Handling IO Exceptions
8. Working with Directories
9. The pickle module

Classes in Python-----

1. Classes in Python
2. Principles of Object Orientation
3. Creating Classes
4. Instance Methods
5. File Organization
6. Special Methods
7. Class Variables
8. Inheritance
9. Polymorphism
10. Type Identification
11. Custom Exception Classes
12. MRO Technique

Regular Expression-----

1. Simple Character Matches
2. Special Characters
3. Character Classes
4. Quantifiers



5. The Dot Character
6. Greedy Matches
7. Grouping
8. Matching at the Beginning or End
9. Match Objects
10. Compiling Regular Expressions

Writing GUI's in Python-----

1. Introduction
2. Components and Events
3. An Example GUI
4. The root component
5. Adding a button
6. Entry Widget
7. Text Widget
8. Check button
9. Radio button
10. Listboxes
11. Menus

Local Database

Database Global

URL BUILDING

JSON AND XML PARSING