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Python for Tech Graduates
Duration : 6 Weeks

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COURSE OUTCOME

UNDERSTANDING OF BASICS OF PYTHON PROGRAMMING

GAINING KNOWLEDGE OF VIRTUAL ENVIRONMENT, STRING AND STATEMENTS

HANDS ON EXPERIENCE OF EXCEPTION HANDLING ,COMPREHENSIONS AND GENERATORS.

LIVE PROJECT.

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Module: 1

GETTING STARTED WITH PYTHON PROGRAMMING

1. Overview
2. Introductory remarks about python
3. A brief history of python
4. How python is differ from other languages
5. Python versions
6. Installing python and environment setup
7. Idle
8. Getting help
9. How to execute python program
10. Writing your first python program
11. How to work on different popular ide's
    [Pycharm , jupyter notebook , spyder etc.]

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Module: 2

VARIABLES, KEYWORDS AND OPERATORS

1. Variables
2. Memory mapping of variables
3. Keywords in Python
4. Comments in python
5. Operators
   Arithmetic Operators ,Assignment Operators, Comparision Operators, Logical Operators, Membership Operators, Identity Operators, Bitwise Operators
6. Basics I/O and Type casting
7. Getting user input

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Module: 3

DATA TYPES IN PYTHON

1. Numbers
2. Strings
3. Lists
4. Tuples
5. Dictionary
6. Sets

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Module: 4

NUMBERS AND STRINGS

1. Introduction to Python 'Number' & 'string' data types
2. Properties of a string
3. String built-in functions
4. Programming with strings
5. String formatting

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Module: 5

LISTS AND TUPLES

1. Introduction to Python ‘list’ data type
2. Properties of a list
3. List built-in functions
4. Programming with lists
5. List comprehension
6. Introduction to Python ‘tuple’ data type
7. Tuples as Read only lists

Project: Employee Data Management by using List

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Module: 6

DICTIONARY AND SETS

1. Introduction to Python 'dictionary' data type
2. Creating a dictionary
3. Dictionary built-in functions
4. Introduction to Python 'set' data type
5. Set and set properties
6. Set built-in functions

Project: Banking System project by using Dictionary

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Module: 7

DECISION MAKING & LOOPS

1. Introduction of Decision Making
2. Control Flow and Syntax
3. The if Statement
4. The if..else Statement
5. The if...elif...else Statement
6. Nested if...else Statement
7. The while Loop
8. break and continue Statement
9. The for Loop
10. Pass statement
11. Exercise

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Module: 8

USER DEFINED FUNCTIONS

1. Introduction of functions
2. Function definition and return
3. Function call and reuse
4. Function parameters
5. Function recipe and docstring
6. Built in functions
7. Scope of variables
8. Recursive functions
9. Lambda Functions / Anonymous Functions
10. Iterators
11. Generators
12. Zip function
13. Closures
14. Decorators
15. Map , Filter & Reduce functions
16. *args and **kwargs

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Module: 9

MODULES AND PACKAGES

1. Modules
2. Importing module
3. Standard Module - sys
4. Standard Module - OS
5. The dir Function
6. Packages
7. Exercise

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Module: 10

EXCEPTION HANDLING IN PYTHON

1. Understanding exceptions
2. Run Time Errors
3. Handling I/O Exceptions
4. Try, except, else and finally statement
5. Raising exceptions with: raise, assert

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Module: 11

FILE HANDLING IN PYTHON

1. Working with files
2. File objects and Modes of file operations
3. Reading, writing and use of 'with' keyword
4. Read(), readline(), readlines(), seek(), tell() methods
5. Handling comma separated value files (CSV file handling)
6. CSV reading and writing with DictWriter
7. Pickling (Pickle file handling)

Project: Fruit Store data management

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Module: 12

EMAIL SENDING AUTOMATION

1. Understanding SMTP
2. Sending email with sendmail() function
3. Email sending with attachment and MIME

Project: Mass mailer

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Module: 13

REGULAR EXPRESSION

1. Pattern matching
2. Meta characters for making patterns
3. re flags
4. Use of match() , sub() , findall(), search(), split() methods

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Module: 14

OBJECT ORIENTED PROGRAMMING WITH PYTHON

1. OOPs concepts: Classes and objects
2. Making of a class and module namespace
3. Static and instance variables
4. Deep understanding of self and init ()
5. Inheritance and Overriding
6. Overloading functions
7. Operator overloading
8. Encapsulation: Hiding attributes
9. Understanding threads
10. Multithreading

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Module: 15

DATABASE CONNECTIVITY WITH PYTHON

1. Working with MySQL database
2. Working with Sqlite3 database

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Module: 16

SOCKET PROGRAMMING

1. What are sockets?
2. Creating sockets
3. Server-client socket methods
4. Connecting client server
5. Project: Client-server chatting Application
6. Exercise

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Module: 17

TKINTER GUI APPLICATION

1. Introduction to Tkinter module
2. Using root window
3. Creating frames
4. Using Labels and Buttons
5. Using Text and Entry widgets
6. KM to M converter application
7. Project: Calculator, Notepad etc.
8. How to create setup file of project.

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ASSIGNMENT LIST (ANY ONE)

1. Restaurant Management System
2. Payroll Management System
3. Simple Quiz GUI APP
4. Student Information System
5. Tic Tac Toe Game
6. Snake Game

Microsoft Technology Associate

Sample

has successfully completed the requirements to be recognized as a Microsoft Technology Associate for

Introduction to Programming using Python

Date of achievement: February 12, 2020

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Satya Nadella
Chief Executive Officer

Microsoft
Technology Associate