Core Python Details

- The course duration for core python is 1 month (60 hours)

Topics covered in Core Python Course

- Introduction to Python and computer programming
- Data types, variables, basic input-output operations, basic operators
- Boolean Values, Conditional Execution, Loops, Lists and List Processing, Logical and Bitwise Operations
- Functions, tuples, dictionaries, and data processing
- Code structuring and the concept of function
- Modules, Packages and PIP
- Strings, String and List Methods, Exceptions
- Object-Oriented Programming
- Python Networking Programming
- Python GUI Programming

The Python syllabus followed by Vidya is from Cisco Networking Academy Partnership so there will be added benefits such as

- Course Completion Certificate from Cisco NetAcad.
- If they are opting for Python + PCAP Exam Bundle in a Cisco Network Academy, then there will be 50% off on the cost of PCAP exam

Python For Data Science

The course duration for python data science is 150 hours.

Topics covered in Python for Data Science

<u>Module-01: Data</u>

- What is Data?
- Why is Data important?
- Types of Data:
  - Categorical Data
  - Numerical Data
  - Discrete Data
  - Continuous Data
  - Nominal Scale
  - Ordinary Scale
  - Interval scale
  - Ratio scale

- The DIKW Model: Knowledge Management and Data
- Transformation & Value Extraction DIKW Pyramid
- Data
- Information
- Knowledge+
- Wisdom

Module-02: Fundamentals of Data Science

- What is Data Science?
- Why Data Science?
- Common terminologies of Data Science
- Applications of Data Science
- Various roles within Data Science
- Careers in Data Science
- Module-03: Understanding Data Processing
- Collection
- Preparation
- Input
- Processing
- Output
- Storage
- Module-04: Essential Stages of Data Science Life Cycle
- 5-7 Days

Problem Statement

- Data Cleaning
- Data Analysis and Exploration
- Data Modelling
- Data Visualization, Plotting & Reporting
- Optimization and Deployment
- Module-05: Why Python for Data Science?
- Data Science Tools: Python Ecosystem
    - Setup a Python3 Ecosystem Environment
    - Setup a Python virtual environment
    - What is pip & pip, install and verify
- Install & Configure following Third Party Python
- Libraries
    - Python3 (Pre-Requisites)
    - VS Code (Pre-Requisites)
    - JupyterNotebook
    - Introduction to Jupyter Notebook
    - Getting Started with Jupyter
    - Numpy
    - Scipy
    - Pandas
    - Matplotlib
    - Seaborn
    - Bokeh
    - Beautiful Soup
- Verify the versions of Python Libraries installation
- Beautiful Soup: Web Scraping
    - Requests Module
    - Response object
    - BeautifulSoup Library: Installation
    - Parsing the HTML
    - Scraping multiple Pages

- Saving Data to CSV
- Numpy: Data Manipulation of large, multi-dimensional arrays and Matrices
  - What is NumPy in Python?
  - Why use NumPy?
  - How to Install NumPy
  - Import NumPy and Check Version
  - What is Python NumPy Array?
  - Creating a NumPy Array
  - Mathematical Operations on an Array
  - Shape of Array
  - 2 Dimension Array
  - 3 Dimension Array
  - What is numpy.zeros()?
  - What is numpy.ones()?
  - numpy.reshape() function in Python
  - numpy.flatten() in Python
  - What is numpy.hstack() in Python?
  - What is numpy.vstack() in Python?
  - Generate Random Numbers using NumPy◦ NumPy Asarray Function
  - What is numpy.arange()?
  - NumPy Linspace Function
  - LogSpace NumPy Function in Python
  - Indexing and Slicing in Python
  - Statistical Functions in Python
- Function
  - Numpy
- Min
  - np.min()
- Max
  - np.max()
- Mean
  - np.mean()
- Median
  - np.median()
- Standard deviation
  - np.std()
- What is numpy dot product?
- Matrix Multiplication in Python
- Determinant
- pandas: Data Manipulation and Analysis
  - What is Pandas?
  - Why use Pandas?
  - How to Install Pandas?
  - What is a Series?
  - What is a Pandas DataFrame?
  - Create & Work with Pandas Series
  - Create & Work with Pandas DataFrame
  - Pandas Range Data
- Label Encoding

- One-Hot Encoding
- Inspecting Data
- Slicing, Indexing
- Drop a Column
- Concatenation
- Working with CSV, Excel, JSON, RDBMS,
- NOSQL data using pandas
- Manipulating using pandas Dataframe
- Data Cleaning/Wrangling/Munging Using pandas

- What is Data Cleaning
    - Data Cleaning Life Cycle
    - Get the Datasets, Merge the Datasets
    - Manage the missing data
    - Data Standardization and Normalisation
    - Deduplication
    - Export the dataset

- Matplotlib & Seaborn: Data Visualization & Plotting
- What is Data Visualization?
- Benefits of Good Data Visualization
- Different Types of Analysis for Data Visualization
- Univariate Analysis Techniques for Data
    - Visualisation
- Bivariate Analysis Techniques for Data
    - Visualisation
- Box plots
- Scatter Plot
- Histograms
- Count plots
- Correlation plots
- Heat Maps
- Pie Charts
- Error Bars

Job roles after learning Python

- Python developer
- Data analyst
- Product manager
- Machine learning engineer
- Research Analyst
- Data Scientist
- Software Developer
- Full-stack developer
- Python Application Engineer

Famous websites using python

- Instagram

Instagram currently features the world's largest deployment of the Django web

framework, which is written entirely in Python

- Google

Python has been an important part of Google since the beginning, and remains so as the system grows and evolves. Today dozens of Google engineers use Python

- Spotify

Spotify's backend consists of many interdependent services, connected by [its] own messaging protocol over ZeroMQ. Around 80% of these services are written in Python.