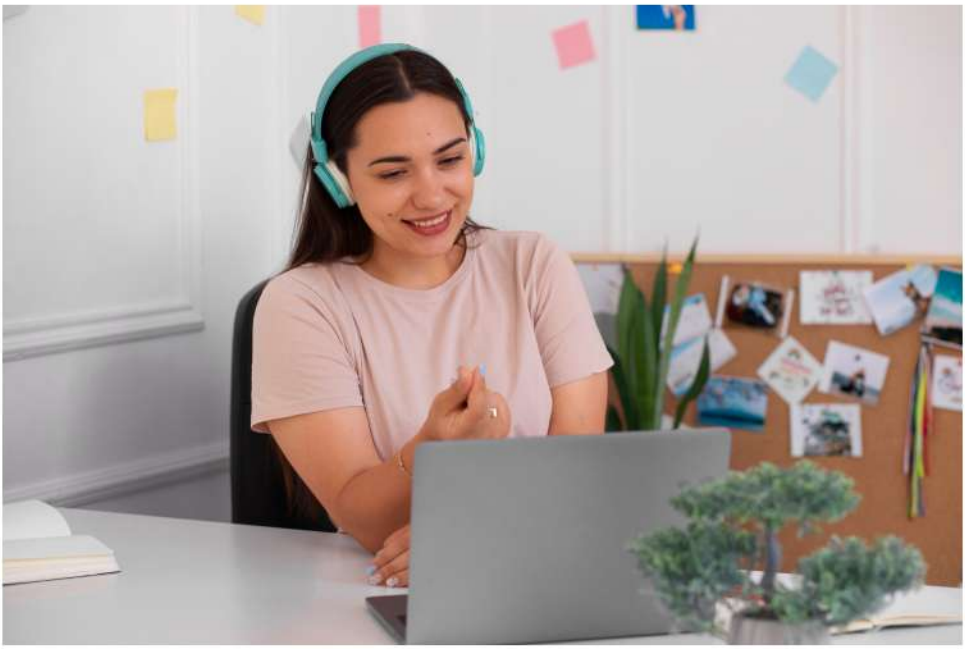
PYTHON DATA SCIENCE

Zetlan Technologies



e-Learning Course

Learn withut leaving home..

Help Desk: +91 8680961847

www.zetlantech.com

COURSE MODULES

Module 1: Introduction to Python for Data Science

- *Why Python for Data Science?*
- *Installing Python & Jupyter Notebook*
- *Python Basics:*
  - *Variables, Data Types, Operators*
  - *Control Flow (if-else, loops)*
  - *Functions and Lambda Functions*
  - *List, Tuple, Dictionary, Set*
  - *Comprehensions & Iterators*

Module 2: Working with Data in Python

- *Importing Data (CSV, Excel, JSON, SQL)*
- *File Handling in Python*
- *Introduction to Pandas:*
  - *Series & DataFrame*
  - *Data Cleaning & Handling Missing Values*
  - *Data Transformation & Manipulation*
  - *Merging & Grouping Data*
- *Introduction to NumPy:*
  - *Arrays & Matrix Operations*
  - *Indexing & Slicing*
  - *Broadcasting & Performance Optimization*

Module 3: Data Visualization

- Introduction to Data Visualization
- Matplotlib:
  - Line, Bar, Scatter, Histogram, Pie Charts
  - Customizing Plots
- Seaborn:
  - Statistical Data Visualization
  - Heatmaps, Pairplots, Boxplots, Violin Plots
- Plotly & Dash (Optional)

Module 4: Exploratory Data Analysis (EDA)

- Understanding Data Distributions
- Detecting Outliers & Anomalies
- Feature Engineering Basics
- Correlation & Feature Selection
- Handling Categorical Data

Module 5: Statistics & Probability for Data Science

- Descriptive Statistics
- Probability Distributions
- Hypothesis Testing
- Confidence Intervals
- t-tests, ANOVA, Chi-square Tests

Module 6: Machine Learning with Scikit-Learn

- Introduction to Machine Learning
- Supervised vs Unsupervised Learning
- Regression Models:
  - Linear Regression
  - Polynomial Regression
  - Ridge & Lasso Regression
- Classification Models:
  - Logistic Regression
  - Decision Trees & Random Forest
  - Support Vector Machine (SVM)
  - K-Nearest Neighbors (KNN)
- Unsupervised Learning:
  - K-Means Clustering
  - Hierarchical Clustering
  - Principal Component Analysis (PCA)

Module 7: Advanced Data Science Topics

- Feature Engineering & Feature Selection
- Model Evaluation Metrics
- Hyperparameter Tuning (GridSearchCV, RandomizedSearchCV)
- Handling Imbalanced Data
- Introduction to Natural Language Processing (NLP)
- Time Series Analysis (ARIMA, LSTM)

Module 8: Deep Learning with TensorFlow & Keras

- Introduction to Neural Networks
- Building Deep Learning Models
- Convolutional Neural Networks (CNNs)
- Recurrent Neural Networks (RNNs)

Module 9: Big Data & Deployment (Optional)

- Working with Large Datasets (Dask, PySpark)
- Model Deployment using Flask, FastAPI
- Streamlit for Interactive Data Apps