GENUITY TRAINING

Course name: Data Science with Python

Course Duration: 3 Months (Approximate)
Mode: Online

Module 1: Introduction to Data Science
• What is Data Science?
• Workflow & applications
• Roles in Data Science
• Environment setup (Python, Anaconda, Jupyter)

Module 2: Python Basics for Data Science
• Data types, loops, conditions
• Functions & modules
• NumPy basics

Module 3: Data Manipulation with Pandas
• Data Frames, importing data
• Cleaning, filtering, grouping
• Feature engineering

Module 4: Data Visualization
• Matplotlib
• Seaborn
• Plotly & dashboards

Module 5: Statistics for Data Science
• Descriptive statistics
• Probability & distributions
• Hypothesis testing
• Correlation

Module 6: Exploratory Data Analysis (EDA)
• Outliers
• Encoding
• Normalization

Module 7: Machine Learning with Python
Supervised: Regression, Classification, SVM, Decision Trees
Unsupervised: K-Means, PCA

Module 8: Machine Learning Workflow
• Train-test split
• Cross-validation
• Hyper parameter tuning
• Model deployment basics (Flask, Streamlit)

Module 9: Databases
• SQL basics
• Connecting Python to SQL

Module 10: Projects
• EDA Project
• House Price Prediction
• Churn Prediction
• Market Segmentation

Module 11: Tools
• Git & GitHub
• Kaggle
• Cloud basics

Module 12: Final Assessment
• Project presentation
• MCQ exam
• Portfolio review
• Career roadmap