Forecasting with Python Training Course

Professional Development Training Course Outline

Category	Logistics and Supply Chain Management	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Forecasting with Python has become an essential skill for data professionals, business analysts, and decision-makers in today's data-driven world. This course provides an in-depth exploration of predictive analytics using Python, covering statistical modeling, time series analysis, machine learning algorithms, and advanced data visualization techniques. Participants will learn how to transform raw data into actionable insights, optimize forecasting accuracy, and support strategic business decisions. The training emphasizes hands-on experience, ensuring that learners can implement Python-based forecasting solutions in real-world scenarios. Key industry trends such as demand forecasting, financial prediction, and inventory optimization are integrated throughout the curriculum to maintain relevancy and applicability.

Forecasting with Python Training Course is designed for professionals seeking to enhance their forecasting capabilities, improve analytical skills, and leverage Python's extensive ecosystem for data analysis. Participants will gain practical knowledge in handling data preprocessing, feature engineering, model selection, and performance evaluation. The course also emphasizes best practices for deploying and monitoring forecasting models, ensuring organizational alignment with data-driven strategies. By the end of this program, learners will be proficient in designing robust forecasting solutions, capable of supporting both tactical and strategic decision-making processes.

Programme Curriculum

Forecasting with Python Training Course

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Course Objectives

By the end of this training, participants will be able to:

1. Understand the fundamentals of forecasting and predictive analytics.
2. Apply Python libraries for statistical modeling and time series analysis.
3. Develop accurate forecasting models using historical data.
4. Implement machine learning algorithms for predictive modeling.
5. Handle data preprocessing and feature engineering for forecasting.
6. Evaluate model performance using standard metrics.
7. Visualize forecasts effectively using Python visualization tools.
8. Integrate forecasting models into business decision-making processes.
9. Conduct scenario analysis and sensitivity testing for predictions.
10. Automate forecasting workflows for efficiency and scalability.
11. Understand the impact of seasonality, trends, and cycles on forecasts.
12. Utilize real-world datasets for hands-on forecasting projects.
13. Optimize inventory, sales, and resource planning using predictive insights.

Organizational Benefits

- Improved strategic planning and decision-making accuracy.
- Enhanced operational efficiency through data-driven forecasting.
- Reduced risks associated with demand and supply fluctuations.
- Optimized resource allocation and inventory management.
- Increased competitive advantage via predictive insights.

- Streamlined reporting and performance evaluation processes.
- Faster adaptation to market trends and consumer behavior changes.
- Improved financial planning and revenue projections.
- Strengthened data culture within the organization.
- Better alignment between analytics teams and business objectives.

Target Audiences

- Data analysts and data scientists.
- Business intelligence professionals.
- Financial analysts and planners.
- Supply chain and operations managers.
- Marketing analysts and strategists.
- IT and software development professionals.
- Academic researchers and students in data-related fields.
- Professionals aiming to upskill in predictive analytics.

Course Duration: 5 days

Course Modules

Module 1: Introduction to Forecasting

- Overview of forecasting concepts and importance.
- Types of forecasting methods.
- Introduction to time series analysis.
- Forecasting challenges in real-world data.
- Case Study: Sales forecasting for a retail company.
- Practical exercises with Python datasets.

Module 2: Python for Forecasting

- Setting up Python environment for data analysis.
- Overview of Python libraries: Pandas, NumPy, Matplotlib, Seaborn.
- Data handling and manipulation techniques.
- Loading and exploring datasets.
- Case Study: Forecasting website traffic using Python.

- Hands-on exercises with sample datasets.

Module 3: Data Preprocessing and Feature Engineering

- Handling missing data and outliers.
- Transforming variables for model readiness.
- Creating lag features and rolling statistics.
- Normalization and scaling techniques.
- Case Study: Forecasting energy consumption.
- Hands-on feature engineering exercises.

Module 4: Time Series Forecasting Models

- Moving average and exponential smoothing.
- ARIMA and SARIMA models.
- Seasonal decomposition of time series.
- Model selection criteria.
- Case Study: Stock price prediction.
- Python exercises for model implementation.

Module 5: Machine Learning for Forecasting

- Regression-based models for prediction.
- Decision trees and ensemble methods.
- Introduction to LSTM and neural networks for time series.
- Model training and evaluation.
- Case Study: Predicting demand in e-commerce.
- Hands-on implementation in Python.

Module 6: Model Evaluation and Optimization

- Forecast accuracy metrics: MAE, MSE, RMSE.
- Cross-validation techniques for time series.
- Hyperparameter tuning for model optimization.
- Scenario and sensitivity analysis.
- Case Study: Optimizing inventory forecasting.
- Practical exercises on model evaluation.

Module 7: Data Visualization for Forecasting

- Python visualization tools for time series.
- Plotting trends, seasonality, and forecasts.
- Interactive dashboards using Plotly and Dash.
- Communicating insights to stakeholders.
- Case Study: Visualizing sales forecast for a retail chain.
- Hands-on visualization exercises.

Module 8: Automation and Deployment of Forecasting Models

- Automating data pipelines for forecasting.
- Exporting and sharing models.
- Monitoring model performance over time.
- Integrating forecasts into business applications.
- Case Study: Automating monthly sales forecast reporting.
- Python scripting and workflow exercises.

Training Methodology

- Instructor-led sessions with interactive discussions.
- Hands-on Python coding exercises for real datasets.
- Case study analysis to link theory with practice.
- Group activities and problem-solving workshops.
- Practical assignments for skill reinforcement.
- Continuous feedback and Q&A sessions.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

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