

# Supply Chain Machine Learning Engineering

Master Python · SQL · Power BI · Forecasting · Optimization

**110+**

Hours Training

**4**

Core Modules

**6**

Learning Steps

**Live**

Weekend Batches

## PROGRAM HIGHLIGHTS

- Hands-on Python, SQL & Power BI using real supply chain datasets
- Classical + ML + Deep Learning forecasting models
- End-to-end demand & supply planning automation
- Simulation, Optimization & S&OP integration
- Weekend batches — Sat & Sun, 11:00 AM IST on Google Meet

**Rs.40,000 | USD 550**

Early bird: Rs.32,000 | USD 440

**PROGRAM FEE (+ applicable taxes)**

## CONTACT / ENROL

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## PROGRAM OVERVIEW

In today's competitive environment, supply chains demand speed, accuracy, and cost optimization. Excel reaches its limits with big data, complex models, and advanced simulations. Our program equips professionals with Python, SQL, and Power BI to build scalable, automated, and optimized supply chain solutions.

## WHAT IS SUPPLY CHAIN MACHINE LEARNING ENGINEERING?

Supply Chain Machine Learning Engineering bridges data science and supply chain management, enabling organizations to move beyond spreadsheets toward data-driven, automated, and scalable decision-making systems across demand planning, supply planning, logistics, and S&OP.

## PROGRAM FOCUS AREAS

### Training Tools

- Python — automation & optimization
- SQL — big data integration
- Power BI — decision dashboards

### Application Focus

- Demand Planning — ML forecasting
- Supply Planning — procurement opt.
- S&OP — cost & profit simulations

### Business Impact

- Lower COGS via smarter procurement
- Higher revenue — fewer stockouts
- Optimized profit margins at scale

## MEASURABLE BUSINESS IMPACT

**15-30%**

Inventory  
Cost Reduction

**20-40%**

Procurement  
Savings

**60%**

Faster Risk  
Detection

**3-6x**

ROI Within  
18 Months

**110+**

Training  
Hours

## WHO SHOULD ATTEND?

- Supply Chain Analysts & Planners
- Procurement & Inventory Managers
- Operations & S&OP Professionals
- Demand Planners & Forecasters
- Data Analysts moving into Supply Chain
- Excel power users upgrading to Python/SQL

## YOUR 6-STEP LEARNING JOURNEY

1

**SCMLE Foundations**

- Key SCMLE components
- Data-driven SC solutions
- Framework overview
- Problem mapping

2

**Data Engineering (SQL)**

- ERP/POS/CRM data sources
- SQL queries & ETL
- Data cleaning
- Large dataset prep

3

**ML Models (Python)**

- Demand forecasting
- Supply planning
- Inventory optimization
- S&OP alignment

↓ Continue to Advanced Modules ↓

4

**Automation & Scalability**

- Automate Excel workflows
- Scale to big data
- Scenario simulations
- Batch processing

5

**Visualization (Power BI)**

- Interactive dashboards
- Real-time KPIs
- Data-driven decisions
- Filters & slicers

6

**Strategy & Tactics**

- Demand & supply plans
- Reduce COGS
- Scalable SC solutions
- Future-ready systems

## WHAT YOU WILL BE ABLE TO DO

- Work with large supply chain datasets — clean, transform and engineer features end-to-end
- Create a complete data engineering roadmap and execute it using SQL and Python
- Build ML solutions: demand forecasting, inventory optimization, simulation and risk scoring
- Prescribe data-driven strategies and tactics for operational and financial success
- Deploy Power BI dashboards and Python automation tools for real-time decision support

## THE CURRICULUM

### PART 1 — PostgreSQL Foundations | 23 Hours

No	Module	Key Topics Covered	Hrs
1	<b>Introduction to PostgreSQL</b>	PostgreSQL architecture & features; Installing & configuring; Connecting with psql & pgAdmin	1
2	<b>SQL Basics in PostgreSQL</b>	Creating databases & schemas; Data types & constraints; SELECT, WHERE, ORDER BY, LIMIT; INSERT, UPDATE, DELETE; Data Cleaning — NULLs, Duplicates, Regex, CAST, COALESCE	6
3	<b>Advanced SQL</b>	Joins (INNER, LEFT, RIGHT, FULL); Subqueries (simple & correlated); Aggregations & GROUP BY HAVING; Window functions (RANK, ROW_NUMBER, SUM OVER)	4
4	<b>Functions &amp; Procedures</b>	Writing SQL functions; PL/pgSQL introduction; Loops, conditionals, error handling	6
5	<b>Data Management</b>	Importing & exporting data (CSV, JSON); Advanced Data Cleaning (regex, string & date); Indexing & performance tuning; Views & materialized views	2
6	<b>Capstone Project</b>	Real-world PostgreSQL project integrating SQL, PL/pgSQL, optimization & security	4
<b>TOTAL DURATION</b>			<b>23 hrs</b>

### PART 2 — Forecasting with Python & Google Colab | 35 Hours

No	Module	Key Topics Covered	Hrs
1	<b>Python Basics</b>	Variables, data types, print, classes, loops — programming fundamentals for data science	9
2	<b>Intro to Forecasting</b>	Basics of forecasting; Python setup on Google Colab; Pandas & NumPy for data handling	2
3	<b>Time Series Data Prep</b>	Importing datasets (CSV, Excel, SQL); Data cleaning & handling missing values; Feature engineering — lags, rolling statistics	3
4	<b>Exploratory Data Analysis</b>	Visualizing time series (Matplotlib, Seaborn); Trend, seasonality & decomposition; Outlier detection	3
5	<b>Classical Forecasting</b>	Moving Averages & Exponential Smoothing; ARIMA & SARIMA models; Model diagnostics & evaluation — AIC, BIC, RMSE	4
6	<b>Machine Learning Models</b>	Regression forecasting (Linear, Ridge, Lasso); Tree-based methods (Random Forest, XGBoost); Model validation — train-test split, cross-validation	4
7	<b>Deep Learning (Optional)</b>	Introduction to RNN & LSTM for forecasting; Building an LSTM model with Keras/TensorFlow; Hyperparameter tuning	4
8	<b>Automation &amp; Deployment</b>	Automating forecasts with Python scripts; Batch processing with large datasets; Exporting results to Excel & Power BI	2
9	<b>Capstone Project</b>	Real-world forecasting project — demand or sales forecasting; End-to-end Python implementation	4
<b>TOTAL DURATION</b>			<b>35 hrs</b>

**PART 3 — Advanced Forecasting with Excel | 39 Hours**

No	Module	Key Topics Covered	Hrs
1	<b>Pattern Detection &amp; Testing</b>	Pattern Detection; Stationary Test; Normality Test; Error Management; Outlier Management	4
2	<b>Correlation Analysis</b>	Linear and Non-Linear Correlation — measuring and interpreting demand driver relationships	1
3	<b>Probability &amp; Distributions</b>	Poisson, Exponential, Binomial, Negative Binomial, Normal, F-Distribution, Uniform — distribution-based demand forecasting techniques	6
4	<b>Time Series Modeling</b>	Average, Moving Average, Weighted Moving Average, Simple Exponential Smoothing, Holt's Model, Holt-Winter's Model, Time Series Decomposition, Error Management techniques	12
5	<b>Additive &amp; Multiplicative</b>	Additive & Multiplicative Time Series based on Holt's and Holt-Winter's model with dampening effect	8
6	<b>Intermittent Demand Models</b>	Croston's Model; 4 Types of Exponential Smoothing; TSB's Models — for lumpy and sporadic demand patterns	8
<b>TOTAL DURATION</b>			<b>39 hrs</b>

**PART 4 — Power BI for Supply Chain Dashboards | 13 Hours**

No	Module	Key Topics Covered	Hrs
1	<b>Introduction to Power BI</b>	What is Power BI & its components; Power BI Desktop vs Service; Connecting to data sources — Excel, CSV, SQL	1.5
2	<b>Data Prep &amp; Cleaning</b>	Power Query basics; Data transformation & shaping; Handling missing values & data types	2.5
3	<b>Data Modeling with DAX</b>	Relationships between tables; Calculated columns & measures; Common DAX functions — SUM, CALCULATE, FILTER	3
4	<b>Visualizations &amp; Dashboards</b>	Building charts & visuals; Interactive filters & slicers; Designing professional supply chain dashboards	2
5	<b>Advanced Features</b>	Drill-through & hierarchies; Tooltips & bookmarks; Power BI Service — publishing & sharing reports	1.5
6	<b>Capstone Project</b>	End-to-end dashboard: Import data → Clean → Build data model → Visualize → Publish	1.5
<b>TOTAL DURATION</b>			<b>12.0 hrs</b>

**TOTAL PROGRAM: 110+ Hours | 4 Parts | Hands-On Capstone Projects**

## SESSION SCHEDULE &amp; TRAINING DETAILS

Training Time

**11:00 AM IST**

India Standard Time

Platform

**Google Meet**

Link shared on registration

Training Days

**Sat & Sun**

Weekend batches only

Resources

**Fully Included**

Recordings, E-books, Code

**NEXT BATCH STARTS: 17 MARCH 2026**

## PROGRAM FEE

EARLY BIRD PRICE

**Rs. 32,000****USD 440**

Paid on or before 3 February 2026

**SAVE Rs.8,000 / USD 110**

STANDARD PRICE

**Rs. 40,000****USD 550**

Paid after 3 February 2026

**+ Applicable taxes as per rules**

## WHAT IS INCLUDED IN YOUR FEE

- **Live Weekend Sessions** — Saturday & Sunday, 11 AM IST via Google Meet
- **Session Recordings** — All sessions recorded — learn at your own pace
- **E-books & Study Material** — Comprehensive notes and reference guides
- **Excel & Python Models** — Ready-to-use templates and working code files
- **Worksheets & Exercises** — Hands-on practice problems after every module
- **Instructor Support** — Direct access to Krish Naidu via WhatsApp

**Note: Taxes as per applicable rules will be added to the above fee amounts.**

## CONTACT &amp; ENROLMENT

**Krish Naidu**

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