

Executive Program in

# Financial Data Analytics & Machine Learning

6-Month | Live & Online | Weekend Sessions



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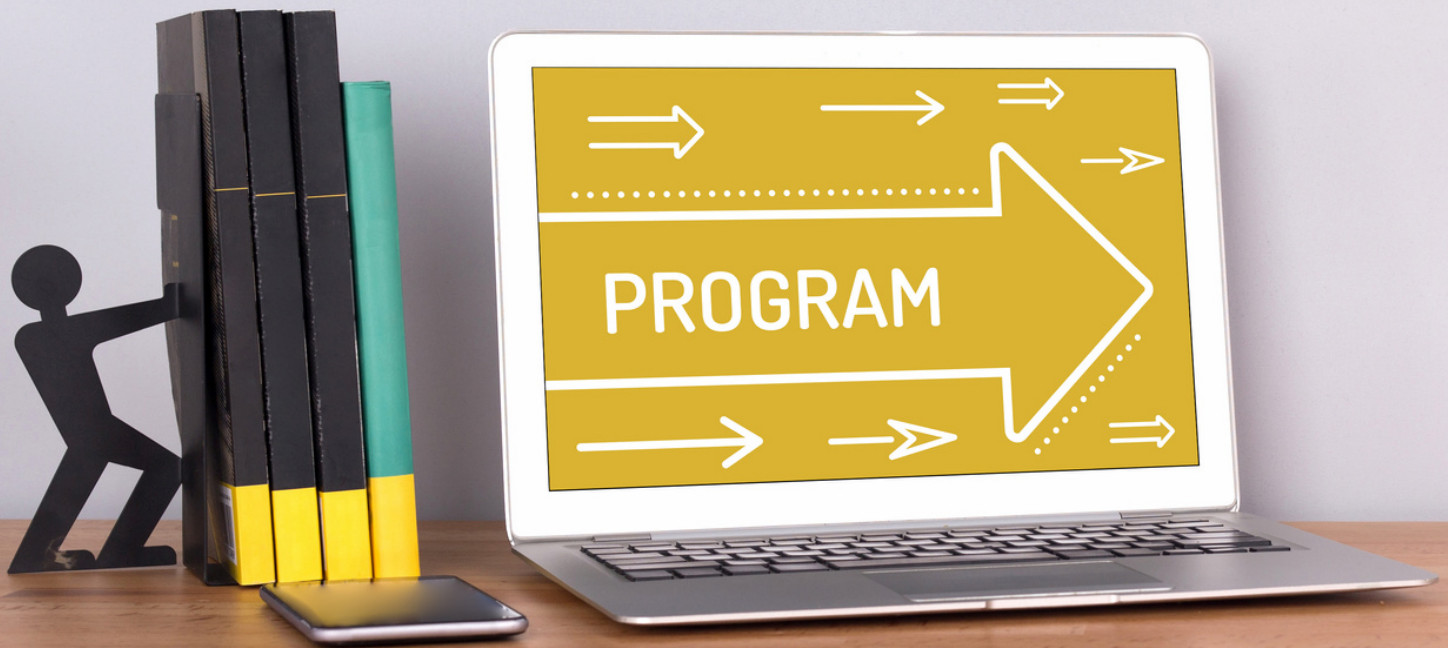
PIR\*



NIRF\*

Learn From Experienced **XLRI** Faculty

## Program Overview



The course is a blend of finance, statistics, and analytics to equip the participants with the required skill sets in analyzing financial data. The program focuses on analyzing financial data using advanced statistical and machine learning techniques.

6 Months of immersive learning from experienced faculty/ professionals of XLRI & other Institutions/ firms

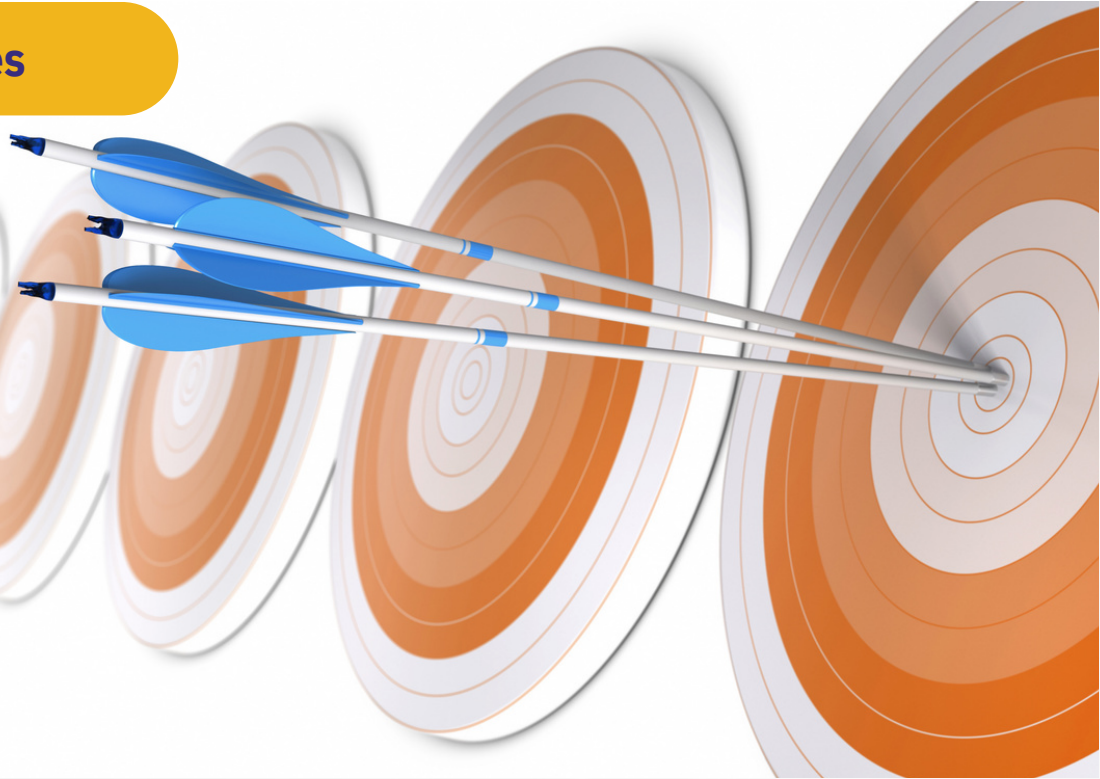
Industry aligned curriculum to teach intersection across finance, analytics and technology

Class discussions, cases, hands-on-projects, interactive & engaging sessions to clear doubts

D2D Live interactive classes on Weekends

Certificate issued by XLRI & NSE Academy


## Program Objectives



- **Understanding Financial Concepts:** Enhancing the understanding of financial markets, instruments, and concepts, enabling students to contextualize their data analysis within the finance domain.
- **Data Collection and Preparation:** Learn methods for collecting relevant financial data from various sources and preparing the data for analysis. This involves cleaning, transforming, and structuring the data.
- **Statistical Analysis:** Develop expertise in statistical methods used in financial analysis, including descriptive statistics, regression analysis, and time series analysis. Understand how these techniques apply to financial datasets.
- **Use-Cases:** Get exposure to various financial decision through use-cases like stock markets, credit risk, portfolio management, etc.
- **Machine Learning Techniques:** Explore machine learning algorithms, such as regression, classification, clustering, and deep learning. Understand how these algorithms can be applied to predict stock prices, customer behavior, fraud detection, and other financial scenarios.
- **Communication and Visualization:** Learn how to effectively communicate findings and insights derived from financial data analysis. Develop skills in data visualization to present complex information in an understandable manner.



## Program Benefits

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- **Strategic Decision-Making:** Develop a data-driven mindset to make informed strategic decisions in complex financial scenarios.
  - **Advanced Analytical Skills:** Acquire proficiency in advanced financial modeling, time series analysis, and risk management strategies to enhance analytical capabilities
  - **Programming Proficiency:** Develop programming skills in Python and R, thereby empowering participants to manipulate and analyze financial data effectively.
  - **Networking:** Connect with fellow professionals and potential collaborators, to expand your professional network.
  - **Real-World Application:** Apply acquired skills to manage real-world financial challenges through a comprehensive capstone project and gain practical experience for immediate implementation.



## Program Director



**DR. PANKAJ K AGARWAL**

- 25+ Years of Professional Experience
- Double doctorate including from XLRI Jamshedpur
- CFA (ICFAI) & CAIIB (IIBF)
- MBA (FMS, MLS University)
- B.Sc.(Mathematics & Physics)

Dr. Pankaj has about 25 years of professional experience including a six-year stint with banking and financial service industry at a fortune 500 banks like SBI. He is double doctorate in finance and management- a fellow of XLRI Jamshedpur and a Ph.D in (Business Management) - MBA (FMSU), CFA (ICFAI) and CAIIB (Gold Medalist). He was previously the Chairperson of Executive Education and Associate Professor at IIM JAMMU. He regularly publishes in the business press viz. The Financial Express and has also published/presented several papers in international conferences and ABDC/Scopus listed journals.

His academic and research interests include Asset Pricing, Derivatives & Risk Management, Financial Econometrics, Financial Modeling with Excel & R, Corporate Finance, Microfinance, Banking and Capital Markets.

## Indian Scenario

The Indian economy demonstrates a positive trend for professionals with knowhow in fintech and applied financial analytics.

According to the NASSCOM Report, the promising India FinTech market is expected to reach \$1 Tn in throughput and \$200 Bn in revenue by 2030. India stack and innovation by FinTech startups has powered the financial inclusion drive being witnessed in the country.

Source: <https://www.nasscom.in/events/nasscom-india-fintech-day-2023>

The adoption of Artificial Intelligence (AI) and Machine Learning (ML) in the financial industry is increasing, and leading to a surge in demand for skilled professionals in financial analytics. The Government of India through its Press Release Bureau website highlights. “Today 40% of all payments done in India are digital. The system has grown rapidly and is now used by close to 300 million individuals and 50 million merchants.”

Source: <https://pib.gov.in/FeaturesDeatils.aspx?NoteId=151350&ModuleId%20=%202>

### Impact of AI & ML on Financial Industry



## Program Contents



### ● **Module 1: Introduction to Programming and Tools:**

- Programming languages like Python or R

### ● **Module 2: Data Preparation:**

- Data cleaning and pre-processing
- Dealing with missing data
- Data manipulation

### ● **Module 3: Data Visualization**

- Data visualization libraries
- Exploratory Data Analysis

### ● **Module 4: Data Analysis and Statistics:**

- Descriptive statistics
- Inferential statistics
- Hypothesis testing
- Regression



## Program Contents

- **Module 5: Building Credit Risk Models**
  - Logistic Regression
  - Predicting Loan Defaults
- **Module 6: Time Series Analysis:**
  - Time series data handling
  - Seasonality and trends analysis
  - Forecasting techniques
- **Module 7: Technical Analysis & Algorithmic Trading:**
  - Chart patterns and technical indicators for stock price analysis
  - Algorithm Selection and Evaluation
  - Model selection criteria
  - Cross-validation techniques
  - Evaluation metrics (accuracy, precision, recall, etc.)
- **Module 8: Portfolio Analytics:**
  - Modern portfolio theory and efficient frontier analysis
  - Risk management techniques in portfolio construction
  - Portfolio optimization using mathematical models and algorithms.
- **Module 9: Machine Learning Fundamentals:**
  - Supervised learning (regression, classification)
  - Unsupervised learning (clustering)
  - Introduction to neural networks and deep learning
- **Module 10: Building Stock Prices Forecasting Models using Machine Learning:**
  - Time series forecasting techniques (e.g., ARIMA, LSTM)
  - Feature engineering for stock price prediction
  - Building and evaluating Machine Learning models (e.g., regression, random forests, neural networks) for price forecasting

## Pedagogy



The program will be largely taught through **class discussions** followed by **hands-on sessions** to build the necessary skills of the participants. The participants will be expected to consult **reading materials, work on exercises and assignments, deliver presentations** and participate in other evaluation components that will be designed to reinforce the learning outcomes. The program will be delivered by faculty members/practitioners from prestigious institutions/ firms such as XLRI practitioners. Throughout the duration of the course, participants will have the **flexibility to reach out to professors in real time** during the class or offline to **raise questions and clear doubts**.

## Evaluation Methodology

XLRI Delhi-NCR will evaluate all the participants based on

- (A) Quizzes
- (B) Assignments
- (C) Project Work/ Final Examination

The evaluation process is completely online.

## Program Certificate

### 1. Certificate of Completion (CoC)

- a. A minimum of 75% attendance is required to qualify for CoC.
- b. Overall score minimum 50% marks in
  - Quizzes
  - Assignments
  - Project Work/ Final Examination

### 2. Certificate of Participation (CoP)

Participants will receive CoP if the criteria for CoC is not fulfilled.

## Eligibility & Prerequisites

- For Indian Participants – Graduates from a recognized University (UGC/AICTE/DEC/AIU /State Government) in any discipline with Mathematics/Statistics up to 10+2 level.
- For International Participants – Graduation or equivalent degree from any recognized University or Institution from their respective country.
- Proficiency in English, spoken & written is mandatory. Deep interest and basics understanding of finance.





## Ideal For

This program is designed for participants with varying levels of knowledge, providing foundation for beginners while offering advanced topics and practical applications for experienced professionals. It caters to a wide audience keen on applied financial analytics. The Program is ideal for:

- Professionals in the Financial Industry
  - Technology Enthusiasts and Innovators ●—●
- Entrepreneurs and Start-up Enthusiasts
  - Data Analysts and Scientists ●—●
- Regulatory and Compliance Professionals
  - Consultants and Advisors ●—●
- Recent Graduates and Career Switchers
  - Professionals from Diverse Backgrounds ●—●
- Professionals from Non-Financial Sectors
  - Faculty Members and Teachers ●—●

## Program Schedule



**Batch Start Month : May 24**

# Program Fee

# ₹ 1,20,000/-

Plus GST

[Register Now](#)

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you join with your colleagues**

**Contact NSE Academy for Corporate Pricing & Scholarships**

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## About XLRI Delhi-NCR



For over 70 years XLRI, India's first B-School founded in 1949, has had just one campus at Jamshedpur. With India slated to become the fifth largest economy in the world in the near future, there is a concomitant need for more responsible business leaders. Hence, a few years ago, XLRI took a strategic decision to expand its footprint across the country and decided to set up new campuses in North.

XLRI Delhi-NCR campus is located in Jhajjar District, at Aurangpur, which is 25 km from Gurugram and is centrally connected to the main districts like Delhi, Gurgaon, and Rewari. The foundation stone for the XLRI Delhi-NCR campus in Jhajjar District was laid on 16 January 2017. Shri Om Prakash Dhankar, Cabinet minister, Government of Haryana unveiled the plaque of the foundation stone, and Rev. Anil Couto, Archbishop of Delhi, blessed the foundation stone.



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## About NSE Academy



NSE Academy Ltd. is a wholly-owned subsidiary of the National Stock Exchange of India Ltd. (NSEIL). NSE Academy enables the next generation of BFSI and FinTech professionals with industry-aligned skills through capacity-building programs and certification courses, powered by an online examination and certification system. The courses are well-researched and carefully crafted with inputs from industry professionals. NSE Academy works closely with reputed universities and institutions across India in building a competent workforce for the future of BFSI and FinTech. NSE Academy also promotes financial literacy as an essential life skill among youngsters - a contribution towards financial inclusion and wellbeing.

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- The "Executive Program in Financial Data Analytics and Machin Learning " program is administered by the NSE Academy Ltd and XLRI Delhi-NCR. The participants need to complete certificate criteria independently to be eligible for the respective certificates.
- The Course Content/Outline mentioned herein is indicative and may be modified by NSE Academy in the best interest of the participants.
- The fee paid is non-transferable and non-refundable.
- \*The mentioned ranking are for XLRI Jamshedpur, to know more about XLRI ranking, please visit :
  - NIRF Raking: <https://www.nirfindia.org/2023/ManagementRanking.html>
  - QS Ranking: <https://xlri.ac.in/about/b-school-ranking-2022>
  - Positive Impact Rating (PIR): <https://xlri.ac.in/about/pdf/1%20-%20PIR%20Report%202022.pdf>