NSE Academy

IIM SIRMAUR
KNOWLEDGE . LEADERSHIP

Batch 2

Executive Program in

Quantitative Finance and Risk Mitigation

Jointly Offered by IIM Sirmaur and NSE Academy

ABOUT IIM SIRMAUR

Indian Institute of Management Sirmaur (IIM Sirmaur) is a Centrally Funded Institution of National Importance set up by the Government of India in 2015. IIM Sirmaur is one of the newer institutions of the IIM family in the country. As a premier institution, under the aegis of Ministry of Education, GoI, it aims to provide Management Education of high quality and promotes allied areas of knowledge and inter-disciplinary studies.

Institute strives for the seamless integration of management education with local and global aspirations in an enabling environment. The institute supports the view that management education is not just about seeking the most competitive employment opportunities, but also about learning to serve socio-economic concerns through ethical and visionary corporate leadership. It strives to focus on indigenous areas and innovative practices, to develop sensitive corporate leaders and entrepreneurs of tomorrow.

PROGRAM DIRECTORS

Dr. Kiran Kumar Paidipati

Dr. Kiran Kumar Paidipati is working as an Assistant Professor in the Area of Decision Sciences at IIM Sirmaur. Prior to this, he served as an Assistant Professor in the Department of Statistics at Lady Shri Ram College for Women, University of Delhi, New Delhi. He also worked as a UGC Post-Doctoral Fellow and completed Ph. D. in Statistics from Pondicherry University, Puducherry. As an academician, he has more than 10 years of teaching and research experience. His research areas include Statistics, Stochastic Modeling, Operations Research, and Data Science. He has taught subjects such as Business Statistics, Probability Theory, Quantitative Analysis for Management, Financial Statistics, Data Analytics with R, Advanced Analytics, Predictive Analytics, Machine Learning and Deep Learning Techniques with R – Programming for graduates, postgraduates and professionals.

Dr. Bhanu Pratap Singh

Dr. Bhanu Pratap Singh is working as an Assistant Professor in the Finance & Accounting area at IIM Sirmaur. He has also worked as an Assistant Professor at IIM Rohtak, Goa Institute of Management and NMIMS Navi Mumbai. He has completed his PhD from IIM Raipur in Finance & Accounting and MBA (Finance) from ICFAI, Hyderabad. As an academician, he has more than 6 years of teaching and research experience. His research & teaching interests include Corporate Finance, Financial Derivatives and Risk Management.

PROGRAM DESCRIPTION & OBJECTIVE

The *Executive Program in Quantitative Finance and Risk Mitigation* program is designed to provide participants with a comprehensive understanding of financial markets, quantitative analysis techniques, and risk management strategies. The program covers a range of topics, including financial statistics, financial derivatives, quantitative analysis, risk measurement, financial modeling, financial markets, instruments, and regulatory frameworks. Through a combination of theoretical knowledge and practical applications, participants will be able to hone the skills needed for quantification of the uncertainties, assess and manage financial risks effectively in various sectors.

PROGRAM OBJECTIVE

The primary objective of the *Executive Program in Quantitative Finance and Risk Mitigation* is to equip participants with the knowledge and skills necessary to excel in the field of quantitative finance and risk management.

The program aims to achieve the following objectives:

- **Develop a strong foundation in financial mathematics:** Participants will gain a solid understanding of mathematical concepts and techniques used in finance, enabling them to analyze and solve complex financial problems.
- **Master quantitative analysis techniques:** Participants will learn how to apply statistical and mathematical models to financial data, enabling them to make informed investment decisions and evaluate risk.
- **Understand and manage financial risks:** Participants will acquire knowledge about different types of financial risks and learn how to measure, monitor, and mitigate them effectively. They will explore risk management strategies and the use of financial derivatives for hedging purposes.
- **Gain expertise in financial modeling:** Participants will develop skills in building and implementing quantitative models to evaluate financial instruments and investment strategies. They will learn programming languages and tools used for financial modeling and simulation.
- **Acquire knowledge of financial markets and instruments:** Participants will gain insights into various financial markets and instruments, including stocks, bonds, options, futures, and foreign exchange. They will understand the characteristics of these instruments and their pricing mechanisms.
- **Understand the regulatory environment:** Participants will learn about the regulatory frameworks governing financial institutions and the impact of regulations on risk management practices. They will gain knowledge of key regulations and compliance requirements.

By the end of the program, participants will be well-equipped to analyze financial data, assess risks, and make informed decisions in the field of quantitative finance and risk mitigation. The program aims to prepare individuals for careers in banking, investment management, insurance, and corporate finance, where quantitative skills and risk management expertise are highly valued.

PROGRAM CONTENTS

Module 0 - Fundamentals Refresher (Self-Paced)

- Data Analytics using R
- Microsoft 365 Excel
- Data Analytics using Python

Module 1 - Introduction

- Financial Markets and Institutions
- Basic Financial Mathematics: Time value of money

Module 2 - Statistics for Finance

- Descriptive Analytics
- Probability Distributions
- Inferential Statistics

Module 3 - Machine Learning

- Introduction to Machine Learning
- Supervised Machine Learning
  - Linear Regression, Lasso, Ridge, Elastic Net
  - Logistic
- Neural Networks and Deep Learning
- Stochastic Processes
- Time Series Analysis
  - AR, MA, ARMA, ARIMA
  - ARCH, GARCH
  - Volatility Forecasting

Module 4 - Financial Modelling

- Model Building
- Preparation of Financial Statements
  - Income Statement, Balance Sheet, Cashflow Statement
- Working Capital Management
- Capital Budgeting Techniques: NPV, IRR, MIRR, Payback Period
- Computation of Cost of Capital (WACC)
  - Cost of Equity (CAPM), Cost of Debt
- Discounted Cashflow Valuation
  - FCFF and FCFE approach

Module 5 - Derivative Valuation

- Introduction: Forward, Futures, Options, Swaps
- Implementing Equity Options Pricing: Binomial Model, Black and Scholes Model
- Implementing Currency Derivatives Pricing
- Implementing Interest Rate Derivatives Pricing
- Option Trading Strategies
- Swaps

Module 6 - Risk Mitigation

- Market Risk
- Credit Risk
- Operational Risk
- Liquidity Risk
- Model Risk, Climate Risk and ESG
- Enterprise Risk Management

CERTIFICATION & ALUMNI STATUS

Certificate of Completion

To qualify for the Certificate of completion the following criteria needs to be fulfilled:

(a) Each participant is expected to have an attendance record of 60% & above

(b) The participant should not have failed in more than two subjects/courses/modules

(c) Each participant is expected to have 40% marks in 4 out of the 8 modules

Participants who are unable to clear the evaluation criteria but have the requisite attendance will be awarded a 'Certificate of Participation'

Certificate Issued By : Indian Institute of Management Sirmaur (IIM Sirmaur)

Candidates successfully completing the program will be eligible to apply for IIM Sirmaur Executive Alumni status*

- **On payment of alumni fee as per the then IIM Sirmaur rules*
- *This program does not confer any Degree/Diploma/Post-Graduate Certificate on the participant by IIM Sirmaur. It is a Management/Executive Development Program where a certificate is issued on successfully meeting the academic/performance requirements.*

PEDAGOGY

Executive Program in Quantitative Finance and Risk Mitigation is an online program that comprises a series of Online lectures, discussions, quizzes, assignments, projects, and online assessments. Our teaching and learning model encompasses the following:

- Blended technology-enabled education
- Eminent faculty
- Application-based pedagogy
- Collaborative learning approach
- Lectures and guest sessions by industry experts
- Experiential learning through practical & hands-on training

ELIGIBILITY CRITERIA

Graduates/Diploma (10+2+3) from a recognised university (UGC/ AICTE/ DEC/ AIU/ State Government/ Recognised international Universities) in any discipline.

WHO SHOULD ATTEND

- **Finance and Banking Professionals** – Those who aspire to grow into advanced analytical roles in Quantitative Analytics, Derivative Pricing and Valuation, Model Validation, Treasury, Financial Risk Management, Compliance, Risk Consulting etc.

- **IT Professionals** – Those who aspire to work in International Banks, Hedge Funds and other leading Financial Institutions in Quantitative Analytics or Financial Risk Management domains or aspiring to lead projects in IT companies for the above-mentioned domains.

- **Risk Management and Consulting Professionals** – Those who aspire to grow into senior roles by gaining deeper and wholesome knowledge in these fields particularly in the area of quantitative risk management.

- **Students** – Students from Engineering, Mathematics, Statistics, Economics, Finance, Commerce etc. backgrounds who aspire to work in International Banks, Hedge Funds, Consulting firms etc. in advanced analytical roles in Quantitative Analytics, Derivative Pricing and Valuation, Model Validation, Treasury, Financial Risk Management, Compliance, Risk Consulting etc.

Program Duration & Schedule

6 months | Online Live - Direct to Device

Saturdays - 02:00 PM to 05:00 PM

Program Fees

INR 80,000/- **plus GST, as applicable**

Details	Participants Fee
Admission Fee+	INR 20,000 + plus GST, as applicable
Program Fee++	INR 60,000 + plus GST, as applicable

+ At the time of enrollment
++ After the Confirmation into the program

For further information & corporate price, contact

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For Scholarship and No Cost EMI please visit
https://www.nseacademy.info/pages/executives_education/executive-program-quantitative-finance-risk-mitigation/

ABOUT NSE ACADEMY

NSE Academy Limited is a wholly owned subsidiary of the National Stock Exchange (NSE). NSE Academy Limited 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 the industry professional. NSE Academy Limited works closely with reputed universities and institutions across India in building a competent workforce for the future of BFSI and FinTech. NSE Academy Limited also promotes financial literacy as an essential life skill among youngsters – a contribution towards financial inclusion and wellbeing.