



**CERTIFIED PROGRAMME ON
ALGORITHMIC TRADING
& COMPUTATIONAL FINANCE USING PYTHON & R**



OVERVIEW

NSE Academy & TRADING CAMPUS presents "Algorithmic Trading & Computational Finance using Python & R" - a certified course enabling students to understand practical implementation of Python and R for trading across various asset classes.

Financial Markets have revolutionized the way financial assets are traded. Thus it is imperative to develop domain knowledge in Equity analysis, Technical Analysis & Algorithmic Trading. Python and R are technology platform of choice for automated trading as these platform provides multiple APIs and Libraries for quick implementation of trading strategy. Within this course, technology and well defined strategies will be used extensively to maximize returns in a highly competitive environment.

This course will provide exposure to application of Python for Algorithmic Trading and "R" for Computational Finance. Students will learn to develop Real-Time Strategies and create a trading engine that will be supported by advance data analytics. Python and R provides a quantitative edge in Advance Capital Markets - Our students will be a step ahead of competition.

PROGRAM HIGHLIGHTS

The aim of the Certified Program on "Algorithmic Trading & Computational Finance using Python & R" is to develop skills and competency of market participants in securities markets. It's a gateway for every participants to Algorithmic Trading with solid foundation of financial markets. The evaluation process involves project reports prepared by applying strategies in Real Time Markets and MCQ's covering the theory content.

KEY HIGHLIGHTS

- Certified program by NSE Academy & Trading Campus.
- Program conducted by faculty with extensive trading experience
- Placement opportunity with top brokerage houses as Quant analyst role
- 100 Hours program to build Algorithmic Trading strategies with advanced data analytics
- Ready to use Strategies & Template with back testing feature
- Understand High Frequency Trading, AI & Machine Learning
- Faculty with industry experience
- Two months internship for top successful candidates.

WHAT WILL YOU LEARN

- Comprehensive LIVE Strategy Engine with back testing feature
- The ability to access the efficacy of an algorithmic trading model within live environment
- Skill set of Python & R for Algo Trading and Advance Financial Data Analytics
- Validation of your skills and expertise in algorithmic trading in the form of a certificate from NSE Academy

SYLLABUS

Algorithmic Trading using Python

Technical Trading (Using Python)

- Basics of Technical Analysis : Chart Types, Chart Patterns, Gap Theory, Candle Pattern, Technical Indicators
- Designing of Strategy Builder using Technical Indicators & Price Theory
- Designing of Back-Testing platform to achieve strategy optimization
- Real-time API Connectivity by handling Broadcast, OMS & RMS
- Real-time Database upgrade & Data wrangling
- Comprehensive LIVE Strategy Engine

Options Trading (Using Python)

- Basics of Options Trading : Option Payoffs, Black Scholes Calculator, Greeks Profile
- Implementing Option Strategies in Live Market using Python
- Designing Greeks Dashboard for hedging mechanism
- Delta Neutral, Gamma Hedging & Volatility Trading using Live Simulators
- Design Back-Testing platform for IV Trading, OI Analysis & Results Trading
- Strategy based on Volatility Smile & Volatility Skew

Grey Box & Black Box Trading (Using Python)

- Implementation of Scalping, Scaling, Advance Jobbing & Trend Jobbing in Live Market Environment
- Triangular Arbitrage Strategies for Forex & Commodities
- Mean Reverting Strategies like Pair Trading using Z score Model
- Basket Strategy (Index-Index, Index-Stocks)
- Statistical Arbitrage Strategies
- Pre & Post Result based Trading Strategies using Sentiment Indicators
- Overview on High Frequency Trading
- Overview on Artificial Intelligence and Machine Learning in Trading

Computational Finance

Equity & Fixed Income Analytics (Using R)

- Fundamental Analysis using Ratio Calculations
- Peer Group Comparison
- Stock Selection Strategy based on Decision Trees
- DCF Valuation and Sensitivity analysis
- Bond Pricing along with duration and convexity
- FX & Interest Rate Derivatives like Interest Rate Futures, Swaps, Currency Options

Portfolio Analytics & Risk Management (Using R)

- Implementation of CAPM, APT & Fama French Model
- Market Neutral Portfolio & Balanced Portfolio
- Model Portfolio using Efficient Portfolio Theory
- Risk Estimation – VAR, Beta, Covariance Matrices, Correlation
- Historical VAR, Stress analysis, Monte Carlo Simulation
- Credit Rating Matrix & Credit Risk Models

Eligibility: Minimum 12+3 (Graduation)

Duration: 4 Months (1 Month for Projects)

Program Format: Classroom Learning

Location: Trading Campus, First Floor, Shop no 3, Raghulila Mall, Kandivali West, Mumbai

Fees Structure: Rs. 50,000/- (including applicable taxes)

P A Y M E N T M O D E

Payment can be done either by NEFT/RTGS or Demand Draft

1) Payment details for internet banking using NEFT/RTGS as per details given below:

NSE ACADEMY LTD
HDFC BANK
Account NO: 00600340081024
MICR CODE - 400240015
IFSC CODE - HDFC0000060
Branch: FORT
OR

2) In case of Demand Draft, please issue a Demand Draft in favour of 'NSE ACADEMY LIMITED' payable at Mumbai.

FACULTY DETAILS

Ronak Moondra, MS in Financial Engineering (USA) holds Financial Risk Manager (FRM) certification from GARP USA. Currently candidate for Chartered Financial Analyst (CFA Level III) USA. His domain expertise are Portfolio & Risk Management, Quantitative Investment strategies, Statistical Arbitrage and Financial Modelling.

Ronak currently heads Quant Research for Option Financial Research Pvt Ltd. He has over 8 years of experience in Algorithmic Trading in International and Domestic markets across all financial products (Equity, Commodity & Forex). He is consultant and trainer for NSE Academy Ltd & NISM (SEBI). Also trains students for various international certifications. Known for his unique way of teaching capital markets.

WHOM TO CONTACT

Feel free to contact in case of any queries at:- info@tradingcampus.in

Contact No:-7802078720/9619497907/9619497906



May prosperity always bloom



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 **NSE ACADEMY**

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