



2 DAY EXECUTIVE WORKSHOP ON

Algorithmic Quantitative Trading



Introduction :

In today's hyper-competitive and cost-conscious trading environment, fund managers and buy-side traders have turned to computerized algorithms provided by brokers. Algorithms have become a must-have for brokers seeking to gain new business and retain their current clientele. Trade carried out using algorithms is known as algorithmic trading. Algorithmic trading can be defined as "placing a buy or sell order of a defined quantity into a quantitative model that automatically generates the timing of orders and the size of orders based on goals specified by the parameters and constraints of the algorithm". The rules built into the model attempt to determine the optimal time for an order to be placed that will cause the least amount of impact on the price of the financial instrument. Algorithmic trading is a way to codify a trader's execution strategy. Algorithmic trading or computer directed trading cuts down transaction costs and allows fund managers to take control of their own trading processes.

Program Objective :

Algo training aims to enhance the competitiveness of executives of all levels in the financial industry. It is designed to assist professionals to take up a leadership role in their position individually and collectively, while improving their knowledge. Training attract some of the finest faculty from industry. Participants learn from both the rich practical experience of the faculty, as well as from the diverse experience of fellow learners. It provides an ideal platform for gaining new insights in order to be successful.

Learning Outcomes :

Successful completion of the course will train the candidates to :

- Carry out Statistical Analysis of Data using Statistical Packages to formulate Algorithmic Trading Strategies
- Build, Back-test, Optimize and Implement Quantitative Algorithmic Trading Strategies
- Integrate the Trading Strategies with Algorithmic Trading Platforms

Who should attend ?

The workshop is ideal for Traders, Investors, Brokers, Sub-brokers, Dealers, Fund Managers, Corporate Executives, Financial Intermediaries, Media, Journalist & anyone who wants to learn Algorithm Trading.

Course Duration : 2 days (16 hours)

Course Structure : Day 1

| Session | Topic |
|-------------|---|
| Session I | <ul style="list-style-type: none">• Introduction to algorithmic trading (AT)• Building blocks of the algorithms• What, why, how, where off AT• Introduction to agency and prop side algorithms• Agency algo: VWAP, TWAP, Inline, Aggressive, Passive• Prop algo: Pairs, Trend following, High frequency etc.• Introduction to DMA, DSA, dark-pool, flash trading |
| Session II | <ul style="list-style-type: none">• Mathematical elements of AT (std, correl analysis)• Spread, volume curve and volatility introduction• Mean reversion and momentum introduction• Hands on training on designing a VWAP algorithm on Excel• Hands on training on designing an automated pair-trading algorithm on Excel |
| Session III | <ul style="list-style-type: none">• Lifecycle in development of AT• Hands on in back-testing and Monte Carlo simulation• Alpha generation: hands on using regression in Excel• Stress-test and simulated trading• Algorithm deployment and execution: CTCL, DMA, FIX etc.• Connectivity to liquidity pools: Exchanges, ECN, inter-dealer broker• Testing methods and live trading consideration |
| Session IV | <ul style="list-style-type: none">• Introduction to risks in AT• Risk management in design and when live• Why quants fail (E.g.: LTCM)? Is it a new age nuclear race?• Examples from 1987, 2001 to recent US intra-day crash• Speed, co-location, latency, precision and scalability• Trading costs: spreads, brokerage, turnover charges• Roles: trader, quant, IT, risk manager, compliance |

Course Structure : Day 2

| Session | Topic |
|-------------|---|
| Session I | <ul style="list-style-type: none"> • Jargons in AT and what it means to a layman • History of AT • Automated scalping • Transaction cost reduction: VWAP, TWAP, Sniper, Slicers • Index arbitrage and Program trading, Options Trading • Dark pool strategies • Market making (sell-side) vs. liquidity extraction (buy-side) • High frequency / Ultra high frequency: low latency trading • Trend following, pair trading, delta neutral strategies, arbitrage |
| Session II | <ul style="list-style-type: none"> • Business aspect of AT • Launch of AT, target markets, client driven or product driven? • Cost of development and deployment: OMS, systems, data, team • Integration with internal systems: OMS, compliance, back-office • Vendors and 3rd party: data, development, launch, maintenance • Revenue models on Agency: brokerage, guaranteed VWAP orders, slippage control, DMA/DSA • Revenue models on prop side • Competitive factors: slippage, execution, diversified algo • Maintenance and improvisation: factors and costing |
| Session III | <ul style="list-style-type: none"> • Global trends in AT • What GS, MS, JPM, CS, DB, UBS etc. are doing? • Role of AT across multiple exchanges: E.g.: Flash Trading, SOR • Business strategies for sustainable growth and profitability globally: new markets, better algo, new products • Major trends across US, Europe and Asia-Pac • Government and regulatory structures globally • Volume generated globally using AT vs conventional trading • Exchanges, competition and a rush to attract AT volume |
| Session IV | <ul style="list-style-type: none"> • Where India stands in AT • Current regulatory approvals and exchange initiatives in India • Taxation, transaction cost in India: set-back to AT? • Current trends in India market: agency side, prop side • Current state of AT: Institutions (large orders) and arbitrage • Is AT possible and profitable at retail client level: If yes how? • Indian exchange challenges: cancellation, consumption of bandwidth, mad-liquidity rush, critical network issues • Growth projections in volume, market share and turnover using AT in next 3-5 years – India and globally |

Conclusion :

Algorithms are widely recognized as one of the fastest moving bandwagons in the capital markets. Employing rules-based strategies has enabled buy-side firms to increase productivity, lower commission costs and reduce implementation shortfall. Algorithmic trading cuts down transaction costs and allows investment managers to take control of their own trading processes. By breaking large orders into smaller chunks, buy-side institutions are able to disguise their orders and participate in a stock's trading volume across an entire day or for a few hours. More sophisticated algorithms allow buy-side firms to fine-tune the trading parameters in terms of start time, end time, and aggressiveness.

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