

Algorithmic Quantitative Trading

Objectives:

This course 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.

Target Audience:

The program is ideal for:

- Traders
- Investors
- Brokers and Sub-brokers
- Dealers
- Fund Managers
- Corporate Executives
- Financial Intermediaries
- Media Journalist
- Anyone who wants to learn Algorithm Trading

Curriculum:

Day 1	
Session 1	Session 2
Introduction to algorithmic trading (AT)	Mathematical elements of AT (std, correl analysis)
Building blocks of the algorithms	Spread, volume curve and volatility introduction
What, why, how, where off AT	Mean reversion and momentum introduction
Introduction to agency and prop side algorithms	Hands on training on designing a VWAP algorithm on Excel
Agency algo: VWAP, TWAP, Inline, Aggressive, Passive	Hands on training on designing an automated pair-trading algorithm on Excel
Prop algo: Pairs, Trend following, High frequency etc.	
Introduction to DMA, DSA, dark-pool, flash trading	
Session 3	Session 4
Lifecycle in development of AT	Introduction to risks in AT
Hands on in back-testing and Monte Carlo simulation	Risk management in design and when live
Alpha generation: hands on using regression in Excel	Why quants fail (E.g.: LTCM)? Is it a new age nuclear race?
Stress-test and simulated trading	Examples from 1987, 2001 to recent US intra-day crash

Algorithm deployment and execution: CTCL, DMA, FIX etc.	Speed, co-location, latency, precision and scalability
Connectivity to liquidity pools: Exchanges, ECN, inter-dealer broker	Trading costs: spreads, brokerage, turnover charges
Testing methods and live trading consideration	Roles: trader, quant, IT, risk manager, compliance

Day 2	
Session 5	Session 6
Jargons in AT and what it means to a layman	Business aspect of AT
History of AT	Launch of AT, target markets, client driven or product driven?
Automated scalping	Cost of development and deployment: OMS, systems, data, team
Transaction cost reduction: VWAP, TWAP, Sniper, Slicers	Integration with internal systems: OMS, compliance, back-office
Index arbitrage and Program trading, Options Trading	Vendors and 3rd party: data, development, launch, maintenance
Dark pool strategies	Revenue models on Agency: brokerage, guaranteed VWAP orders, slippage control, DMA/DSA
Market making (sell-side) vs. liquidity extraction (buy-side)	Revenue models on prop side
High frequency / Ultra high frequency: low latency trading	Competitive factors: slippage, execution, diversified algo
Trend following, pair trading, delta neutral strategies, arbitrage	Maintenance and improvisation: factors and costing
Session 7	Session 8
Global trends in AT	Where India stands in AT
What GS, MS, JPM, CS, DB, UBS etc. are doing?	Current regulatory approvals and exchange initiatives in India
Role of AT across multiple exchanges: E.g.: Flash Trading, SOR	Taxation, transaction cost in India: set-back to AT?
Business strategies for sustainable growth and profitability globally: new markets, better algo, new products	Current trends in India market: agency side, prop side
Major trends across US, Europe and Asia-Pac	Current state of AT: Institutions (large orders) and arbitrage
Government and regulatory structures globally	Is AT possible and profitable at retail client level: If yes how?
Volume generated globally using AT vs conventional trading	Indian exchange challenges: cancellation, consumption of bandwidth, mad-liquidity rush, critical network issues
Exchanges, competition and a rush to attract AT volume	Growth projections in volume, market share and turnover using AT in next 3-5 years – India and globally