The Financial Markets the world over have seen a major paradigm shift in how trading is done. Trading done by computer programs known as Algorithmic Trading or Program Trading has existed for decades now, but over the recent years with the emergence of technologies, electronic markets, availability of high frequency data, faster networks, faster machines, better data analytics and more evolved theories, the domain of High Frequency Trading has emerged as a major mechanism as well as an end in itself. These algorithms depend on quantitative techniques for detection of profitable trade opportunities, generating trade signals, generating the trades and trade order execution. At each stage there is extensive use of technologies.

Algorithm Trading, both High-Frequency as well as Low Frequency, using Quantitative Methods is now a very lucrative career. A breed of traders known as the Algo-Traders or Quant-Traders has emerged who have certain skill-sets that are much sought after in the industry.

The PGPAT course, conducted by IIQF in association with Master Trust, a leading Financial Services Firm, and taught by highly qualified and experienced market practitioners is a job-oriented course that aims to produce industry-ready Algo-Traders, who can join trading desks of various financial institutions or setup their own independent algorithmic prop trading desks.

Web: www.iiqf.org        Phone: +91-22-28797660 / 9769860151        email: info@iiqf.org
**Brief Curriculum**
- Introduction to Algorithmic Trading
- Introduction to Quantitative Trading
- Basic Statistics
- Advanced Statistics for Quantitative Trading
- Econometrics for Quantitative Trading
- Data Analysis for Quantitative Trading
- Statistical Analysis using R
- Momentum and Mean Reversion Strategies
- Statistical Arbitrage Strategies
- Pairs Trading
- Market Microstructure
- Electronic Market Making
- High Frequency Trading Strategies
- Low Latency Trading Strategies
- High Frequency Data Management
- Fundamentals of Options and Futures
- Basic Options Trading Strategies
- Advanced Options Trading Strategies
- Directional Strategies
- Market Neutral Strategies
- Statistical Arbitrage Strategies
- Managing Options Greeks
- Execution Algorithms
- Sell-side Algorithms
- VWAP / TWAP
- Implementation Shortfall
- Dark Pools
- Strategy Back-testing and Optimization
- Risk Management in Trading
- Programming in VBA and C++
- Implementing Strategies in Excel VBA
- Implementing Strategies in C/C++

**Who Should Attend**
- Fresh Graduates
- Management Students
- Finance Professionals
- Dealers
- Arbitrageurs
- Prop Traders
- Retail Traders

**Course Details**
- **Duration:** 6 Months
- **Schedule:** Saturdays and Sundays
- **Fee:** INR 180,000/- (All Inclusive)
  (Group discounts available)

**Scholarship**
- **Master Trust,** a leading Financial Services group, offers 50% course fee refund in the form of brokerage credit for students successfully completing the course.

**Course Eligibility**
- First Class Graduate degree in science / economics / commerce / engineering / management (with mathematics as one of the subjects)

**Learning Outcomes**
- Carry out Statistical Analysis of Data using Statistical Packages for finding Algorithmic Trading Strategies
- Build, Back-test, Optimize and Implement Quantitative Algorithmic Trading Strategies
- Integrate the Algorithmic Trading Strategies with Algorithmic Trading Platforms

**Internship**
The best way to complete the learning process and validate all the theoretical knowledge acquired is to put them in practice in the real world and hone the practical implementation skills. The ultimate test of learning of an algo-trader is to actually trade in live market, practically implement the knowledge acquired and strategies learnt and assess the performance. Students will get internship opportunity to get exposure to trading in live market.

**Placement**
Students successfully completing the course will get placement as Algo Trader with proprietary trading desk subject to fulfillment of applicable conditions.
Faculty

**Dr. Rituparna Sen**, Ph.D. (Statistics) University of Chicago, Graduate student in Statistics, Stanford University, Master of Statistics, Indian Statistical Institute, Bachelor of Statistics Indian Statistical Institute. She is Assistant Professor, Indian Statistical Institute, Chennai. She was previously Assistant Professor, University of California at Davis, Davis, CA, USA, where she taught courses on Applied Statistics, Mathematical Statistics, Mathematical Finance and allied disciplines. Her research interests include Application of Statistics in Finance, in areas like Convergence of stochastic processes, Inference for diffusions, Bayesian filtering, asymptotic inference, likelihood estimation, functional data analysis, hidden Markov models, extreme values, multivariate time series, high-dimensional data, discontinuous asset price, stochastic volatility, optimal derivative pricing and hedging in incomplete market, covolatility for asynchronous data, volatility in the presence of microstructure noise, online auctions, exchange rates, interest rates, energy markets, risk analysis, contagion.

**Abhijit Biswas**, is the founding Director and Head of Product Development at Risk Infotech Solutions, India’s pioneering company in Portfolio Risk Management Software Products. He is currently consultant to HPC Links which is involved in the development of Quantitative Finance solutions and services using High Performance Parallel Computing technologies in Algorithmic Trading, Risk Analytics, etc. He is also consultant to financial institutions for Volatility Trading systems. He is also the founding Director of IIQF. He has been a consultant to major global financial institutions in risk management domain.

**Amarendra Kumar**, M.Sc. (Economics) IGIDR and Statistics for Financial Engineers from University of California, Berkely (Haas School of Business) is Senior Trader and Strategist for International Markets (Fixed Income, Commodities and Energy) at Centaurus Financial Services India where he is responsible for developing quantitative strategies for Trading & Risk Management and mentoring/managing new Traders. As a Fixed Income Trader his experience is in Trading Bond/Treasury futures, STIR futures, Eurodollars, Swaps, Commodities and Energy products in the International Markets across exchanges (CME, CBOT, LIFFE, EUREX, ICE, EURONEXT).

**Anand Sabale**, FRM, M.Tech. IIT Kanpur, BE (Shivaji University). He is Partner at SPN Risk Solutions LLP, where he is involved in Statistical Arbitrage Trading in India Markets and advising broker’s prop desk for Stat-Arb trading. He has over six years of experience in risk management consulting, performance analytics and algorithmic trading. He is involved in risk management consulting and performance analytics for hedge funds and fund of hedge funds. Previously he had worked with Capital Metrics and Risk Solutions where he was involved in developing quantitative trading strategies and performance analytics for hedge funds.

**Kalyan Roy**, Ph.D. candidate in Statistics (Indiana University, Bloomington, U.S.A.), Master of Statistics (Indian Statistical Institute, Kolkata), Bachelor of Statistics (Indian Statistical Institute, Kolkata). He is Research Scientist in Financial Market Microstructure, Transaction Cost Analysis and Algorithmic Trading with one of India’s largest Broking House. Previously he was the Head of Quantitative Analytics at Capital Metrics & Risk Solutions. Prior to that he worked as a Quantitative Analyst with Deep Value Technology, an innovative firm specializing in high-performance algorithmic trading strategy vehicles where he was involved in studying stochastic models of equity market microstructure, developing ultra-high frequency trading algorithms, statistical modeling, estimation of volatility based on ultra-high frequency data, building factor models for the S&P500 stocks, statistical modeling of market and limit order arrival times and cancellation times and ultra-high frequency equity price time series.

**Snehal Soni**, pursuing Ph.D. Delhi University, MBA (Finance) FMS Delhi University, PGD Security Analysis and Portfolio Management (Fore School of Management). He was the Head of Proprietary Trading at IKM Investor Services Ltd. where he was responsible for developing proprietary trading models on pricing inefficiencies, Index Basket arbitrage, Volatility mismatches like skew etc., Statistical based trading models. Dispersion Trading etc., implementation of Automated trading systems. He has nearly 17+ years of experience in Derivatives Research, Hybrid Instruments, Proprietary Trading, Fund Management, Risk Management, System Implementation, Procedure Implementation, Hedging Strategies, Portfolio Management, Investment Management.

**V. Sujit**, M.S. (Statistics) Stanford University, USA and B.S. (Mathematics, Computer Science), Utah State University, USA. He is currently a Consultant providing clients with cutting edge solutions in Analytics, Predictive Modeling, Data Mining, Large Dataset Analysis and Marketing Optimization.
About IIQF

Indian Institute of Quantitative Finance (IIQF) is established as a center of learning in the field of Quantitative Finance and Financial Engineering. Founded by leading finance professionals and entrepreneurs with extensive global experience and expertise in specialized Quantitative Finance and Risk Management domains and educational background from the best of global institutions. It is the first institute of its kind in India that exclusively focuses on this extremely specialized field. IIQF conducts specialized courses and corporate training programs on advanced quantitative finance, risk management, financial modelling, simulations and econometrics for corporates and individuals. There are specialized courses tailored to the specific needs of investment banking and other finance verticals.


It has conducted corporate training programs for banks like Bank of New York Mellon, CitiBank, Societe Generale, ING Vysya etc. In partnership with Thomson Reuters it conducts the most comprehensive course in Financial Engineering in India.

About Master Trust

Master Trust (www.mastertrust.co.in) is one of the leading financial services group in India catering to retail as well as HNI client base across different products including equity trading, derivatives trading, commodity trading, currency derivatives trading, insurance, collateralized loans, portfolio management, financial planning and investment banking, directly and through its subsidiaries. Master Trust currently has over 100,000 clients spread across more than 700 points of presence (network of own branches and franchisees) across 22 states in India and a daily client trading volume of close to Rs.35 billion on all exchanges in India put together.

Master Trust has a strong belief in nurturing investment culture, attitude and inculcating a very strong approach towards value investing forms the central part of any sound investment philosophy. With an impeccable track record in client servicing of over two decades, Master Trust has now grown to 650+ strong employee organization. At Master Trust, the endeavor is to constantly meet every financial need of our esteemed clients.