



Center of Excellence
in Quantitative Finance
and Risk Management

CPFE

**CERTIFICATE PROGRAM IN
FINANCIAL ENGINEERING**

FinoQ Executive Program
Indian Institute of Quantitative Finance

The most comprehensive program of financial
engineering



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**India's First
Quant Finance Institute**



Modern Investment Finance is hugely dependent on the implementations of the theories and techniques of Financial Engineering. Financial Engineering or Quantitative Finance as it is alternately known, is a multidisciplinary field involving the application of theories from financial economics, physics, mathematics, probability, statistics, operations research and econometrics using the methods and tools of engineering and the practice of computer programming to solve the problems of Investment Finance.

Generally the language of choice for Quant implementations is C++ along with tools like Matlab, Mathematica, Stata, etc. and of late Python language have become more popular.

Financial Engineering has emerged as a very prospective career prospect for people with strong mathematical background like those coming from engineering, mathematics, statistics, physics or econometrics background.

The best of the global financial institutions like Investment Banks, Hedge Funds, etc. hire people having strong quantitative skills for “Quant” jobs.

This is also a very rewarding and exciting career option for such people as there is ample scope for applying their numerical and creative skills to design new things, be it like devising new investment strategies or be it structuring new financial instruments or be it finding methods to value them.

They are continuously competing with their peers and some of the best of minds in the market and have to out-perform them to generate a superior return, which is intellectually a very challenging work, and this makes it all the more thrilling.



Dr. Ashwini Nanda,

Founder and CEO of HPC Links. For over 25 years, he has been involved in research and development of high performance computer systems and applications in both India and the US. He was the head of TATA CRL, where he led the development of the Eka system, Asia's fastest supercomputer in 2007, and India's fastest till date. At IBM TJ Watson Research Center, NY, he conceptualized and led the development of Cell processor based systems, and the world's first Petaflop machine, Roadrunner, at Los Alamos National Labs.

Rajan Gadkari,

who has served as Managing Director for some of the largest Investment Banks and Financial Institutions in New York like Thomson Reuters, JP Morgan and as Director in Lazard Capital Markets and Merrill Lynch.

Anisa Maljee,

Ph.D candidate in Financial Risk Management, University of Durham, UK .



Abhijit Biswas,

Founding Director of Indian Institute of Quantitative Finance. He is also the Founder Director and Head of Product Development at Risk Infotech Solutions, VP and Head of Financial Technologies at HPC Links and Founder Director of Quant Qubit.

Dr. M.P. Rajan,

Ph.D. IIT-Madras, Assistant Professor at School of Mathematics, Indian Institute of Science Education & Research. Previously he has been an Associate Professor with the Dept. of Mathematics, IIT-Guwahati. He had worked with Goldman Sachs as Quant Analyst.

Rajat Bhatia,

Founder & CEO of Neural Capital, Partner Neural International Partners. He has a combined experience of nearly 30 years in the global financial markets. He has worked in New York, London, Hong Kong, Singapore, Sydney, Dubai and India in a wide range of areas which include Derivatives Structuring & Trading, Capital Markets, Alternative Investments, Equity Markets.

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About CPFE Program

OVERVIEW &
PROGRAM HIGHLIGHTS

FinoQ Executive Program
Indian Institute of Quantitative Finance



OVERVIEW

The Certificate Program in Financial Engineering (CPFE) prepares students for technically sophisticated jobs with financial institutions, financial service providers, financial consulting services and financial software companies. The program is intended for students seeking comprehensive technical knowledge of vanilla and exotic derivatives pricing, hedging, trading and investment strategies and portfolio management in equity, currency, interest rates, credit and mortgages.

This is a short-term course that requires seven months of study for the core modules, which makes it attractive to students with strong quantitative skills who are willing to make a quick head start in the investment finance industry. The applied nature of the program implies the fact that there is great emphasis in it to impart the practical implementation skills and techniques that are actually used by practitioners in top financial institutions in the industry, so a considerable part of the course time is devoted to teaching implementation skills along with rigorous theoretical discourse.

As an applied discipline, financial institutions look for the following skill sets in the candidates for positions in their Quant teams:

- Strong quantitative background
- Sound knowledge of the financial theories
- Very good implementation skills

This course is designed specifically to meet these exact needs. This is a course on modelling and applications of mathematics, statistics and econometrics in investment finance. The program covers all the technical and quantitative aspects of investment finance used in top financial institutions.

The combination of skills imparted through this program viz. understanding of complex financial theories, rigorous exposure to the underlying mathematical and statistical theories, practical financial modeling ability and computer implementation proficiency, is in high demand in the industry, and which the employers do not generally find in graduates of standard MBA or engineering programs.



PROGRAM HIGHLIGHTS

World Class Faculty:

Learn from highly acclaimed Quant practitioners and academics in Quantitative Finance who have worked with topmost global investment banks and firms in New York, London, Singapore, Sydney and more, with academic background from some of the world's top universities like Stanford (USA), Columbia (USA), London Business School, IIM, IIT, ISI, etc.

Industry focused curriculum:

Advanced curriculum designed by Quant practitioners from top Wall Street Investment Banks and financial institutions and industry experts to prepare job-ready professionals who are highly sought after by MNC financial institutions. Master latest Quant skills including Machine Learning..

Rigorous Practical Implementation:

Learn how to combine theory and computational methods with the practical knowledge of the real-world application areas of these skills. Learn practical implementation of models in PYTHON

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CPFE Program

COURSE COVERAGE &
CURRICULUM OUTLINE

FinoQ Executive Program
Indian Institute of Quantitative Finance



CPFE - PRIMER MODULES (Recorded Lecture Based)

Primer 1: Introduction to Investment Finance

- Introduction to Finance and Financial Institutions
- Introduction to Capital Markets
- Introduction to Debt Markets
- Introduction to Derivatives Markets

Primer 3: Introduction to Probability & Statistics

- Introduction to Probability
- Probability Distributions
- Descriptive and Inferential Statistics

Primer 2: Introduction to Financial Mathematics

- Introduction to Linear Algebra
- Introduction to Differential Calculus
- Introduction to Integral Calculus
- Introduction to Ordinary Differential Equations

Primer 4: Introduction to Programming

- Programming in Python

Optional Primers - Registered Participants gets access to four optional primers of Pre-recorded modules on Maths/Stats/Finance/Python

CPFE - MAIN MODULES

Module 101: Introduction to Financial Engineering

- Introduction to Financial Economics
- Introduction to Bond Mathematics
- Options Fundamentals
- Introduction to Exotic Options

Module 102: Financial Mathematics I

- Probability Theory
- Basic Stochastic Processes
- Brownian Motion



CPFE - MAIN MODULES

Module 103: Financial Mathematics II

- Stochastic Calculus
- Black-Scholes-Merton Model

Module 105 – Numerical Methods

- Numerical Methods for Partial Differential Equations
- Monte Carlo Simulation Methods

Module 107: Derivatives Valuations 2 (in Python)

- Interest Rate Derivatives
- Credit Derivatives

Module 104 – Machine Learning for Quantitative Finance (in Python)

- Regression Models
- Time Series Models
- Volatility Forecasting

Module 106: Derivatives Valuations 1 (in Python)

- Equity Derivatives
- Currency Derivatives

Module 108 – Risk Analytics

- Introduction to Financial Risk
- Market Risk
- Credit Risk
- Operational and Compliance Risk



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About CPFE Program

FACULTY

FinoQ Executive Program
Indian Institute of Quantitative Finance



DR. AMIT RAM

- Ph.D. (Statistical Physics and Computational Methods) Stanford University (USA)
- B. Tech. (Engineering Physics) IIT (Bombay)
- Over 10 years of experience working in Lehman Brothers (New York), JP Morgan Chase (New York), Standard Chartered (Singapore), Nomura (Mumbai).

He is currently Vice President, Quantitative Risk with a leading global investment bank, where he is responsible for VaR methodologies and works on VaR process.

DR. SAMIR RANJAN

- Ph.D. (Theoretical Physics) Purdue University (USA)
- MS (Mathematical Finance) Columbia University (New York)
- Over 10 years of experience working as Financial Engineer with Bond desk Group in New Jersey (USA).

He currently teaches Financial Mathematics at one of the leading private universities and is also the Director of the Integrated MBA program.

Dr. Vivek Kumar Mishra

- Ph.D. in Computer Science from IISC Bangalore
- Masters of Engineering from IISC Bangalore
- B. Tech from IIT Roorkee
- He is an expert in applying Machine Learning using Python and R in Algorithmic Trading. He currently works for Deep Value an US based firm that develops research-driven trading algorithms based solely on best execution.

SRIJOY DAS

- MSc. Finance from London Business School
- B-Tech from IIT Kanpur
- Over 14 years of experience in Quantitative analysis and research that includes areas such as Derivatives Pricing, Market and Credit risk and has worked in India, USA & UK in a variety of roles in international banks and consulting firms. He is currently working in a leading investment bank in model risk management function on validation of regulatory stress testing models and also internal stress testing models such as FWST etc. Further he is a thought leader and a scholar who likes to connect with, influence and inspire his audience through writing, speaking, lecturing and debating and using world-class network of resources.



UJWAL DINESH

- MBA (IIM-Calcutta), FRM, CFA
- BE (NIT Surat), PG Diploma in Securities Law
- Currently working as a GM of one of the top MNC IT Company leading their Risk Management team and Derivative Valuations team. Previously he was working with one of the top four Wall Street Banks as Credit Analyst where he was responsible for structuring and recommending exposure for fund-based, non fund-based and derivative facilities. He has experience of statistical modelling of short-term interest rates in India.

RUPAL MISHRA

- Executive MBA from IIM Kozhikode
- B.Tech from IIT, Kanpur
- More than 10 years of experience in various areas of finance. He currently works as Vice President, Fixed Income at one of the largest International Bank for their Corporate Investment Banking Division. He has worked as Assistant Vice President at Credit Suisse, Investment Banking Division. He also been a regular internal trainer in the organizations that he has worked in.

RITESH CHANDRA

- MBA IIM Calcutta
- B. Tech. IIT Kanpur and CFA (Level 3 Pass)
- More than 11 years of experience in Credit Risk, Corporate Finance & Technology and has worked in India, China and Canada in a variety of roles

He is currently Executive Vice President – Corporate Credit Risk with one of the largest private banks.



About CPFE Program

ADMISSION PROCEDURES
AND OTHER DETAILS

FinoQ Executive Program
Indian Institute of Quantitative Finance



WHO SHOULD ATTEND

- Finance Professionals like Analysts / Fund Managers / Traders / Risk Professionals / Fund Accountants / Consultants / Derivatives structurers / Dealers / Arbitrageurs
- Software professionals
- Graduate students

ELIGIBILITY

Undergraduate degree in finance / engineering / mathematics / statistics / physics / economics / econometrics / chartered accountancy / computer science / MBA / CFA / FRM / PRM

ADMISSION

Candidates may apply online for admission to the course. Admission will be based on the candidate's academic background, professional experience and personal interview.

PROGRAM DELIVERY

1. Classroom based Instructor-led
2. Live Interactive Instructor-led Lectures online

PROGRAM DETAILS

Duration (Main Modules): 320 Hours (8 Modules)

Primer Modules: Participants gets free access to recordings of all 4 Primers on course registration.

Schedule: Saturdays and Sundays (5 hours per day)

FEE DETAILS

Course Fee: INR 168,000 (All inclusive)/ USD 2,400 for participants registering from outside India.

(Group discounts available)

PLACEMENT ASSISTANCE

Students successfully completing the course will get placement assistance subject to fulfillment of applicable conditions.

CERTIFICATION REQUIREMENTS

1. Term end Project
2. Module-wise assignments
3. 70% Attendance



What are the prerequisites for this program?

- Minimum Graduation in science / Undergraduate degree in finance / engineering / mathematics / statistics / physics / economics / econometrics / chartered accountancy / computer science / MBA / CFA / FRM / PRM.

Proficiency in spoken and written English. Basic knowledge of Statistics. Working knowledge of Excel

Computer and an internet connection. We teach in Windows based platform. Mac users will need to Install Windows in Parallels Desktop for Mac.

Is the program suitable for people having no background in finance?

- Financial Engineering as a discipline involves very heavy Mathematical modelling, so people from Quantitative background are more suited to make a career in this field compared to pure finance guys. So, while any prior knowledge is always useful, however the course has been designed in a way that even people having no knowledge of finance can attend and learn from this program.

Further when you join the course you get access to a Primer module on Finance which you have to go through.

Is the program suitable for non-programmers?

- We use a lot of Python in this course for teaching practical implementation of the models. So, participants having prior programming background definitely have an advantage.
- For participants who do not have a programming background, they will need to attend a primer module on basic Python Programming. For registered participants of the course, when you join the course, you get access to a Primer module on Python.
- The Python primer module is designed for people who do not have any kind of prior programming background and want to learn programming for developing applications related to finance. The aim of this module is to teach python in an easy, lucid and structured way so that people coming from even no-technical or non-programming background can learn and use the python language.

How is the course delivered?

- This program is conducted as a comprehensive online course offered via online live interactive lecture sessions on weekends. All lectures are recorded also and participants gets access to view the lecture recordings as well.

How long has this programme been around for?

- TThe first cohort of this program commenced in 2010.



Frequently Asked Questions



Who should attend?

- If you are someone who has strong mathematical bent of mind and wish to make a career which involves high-end analytics, mathematical modelling and wish to do research oriented, exciting and intellectually challenging jobs in International Banks and Hedge Funds.
- So, whether you are a fresher trying to break into Quantitative Investment Banking or Risk Management or a seasoned professional trying to learn the domain in deep to further your career prospects, then this is the perfect program to look at.
- Also, students from Engineering, Mathematics, Statistics, Economics, Physics etc. background who aspires to work in International Banks, Hedge Funds, Prop Desks etc. in advanced Quant Trading/Algo Trading roles or in advanced analytical roles in Quant analytics, Derivative Pricing and Valuation, Model Validation, Treasury, etc. should do this course.

Who are the faculty?

- The course is taught by highly acclaimed Quant practitioners and academics in Quantitative Finance who have worked with topmost global investment banks and firms in New York, London, Singapore, Sydney and more, with academic background from some of the world's top universities like Stanford (USA), Columbia (USA), London Business School, IIM, IIT, ISI, etc.

What is covered in the course?

- Optional Primers: Introduction to Investment Finance, Introduction to Financial Mathematics, Introduction to Probability & Statistics, Introduction to Programming (Python).
- Probability Theory, Basic Stochastic Processes, Brownian Motion, Stochastic Calculus, Black-Scholes-Merton Models.
- Machine Learning for Quantitative Finance, Monte Carlo Simulation Methods, Numerical Methods for Partial Differential Equations both theory and implementation in Python.
- Valuation of Equity Derivatives, Interest Rate Derivatives, Currency Derivatives, Credit Derivatives, Swaps both deep understanding of the models and learning the practical implementation and modelling in Python.
- Coverage of Financial Risk Management areas, Market Risk, Credit Risk, Operational and Compliance Risk etc. both theory plus practical modelling.

Will certificate be awarded on completion of the program? What are the certification criteria?

- The participant becomes eligible to get the certificate on completion of a capstone project that is given at the end of the program, participants who attend and follow all the lectures should be able to complete the project. So, to get the certificate you will also have to complete and submit the project.



Frequently Asked Questions



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Is there any placement support?

We have dedicated placement team who provides strong support to all successful participants for getting relevant jobs in International Banks, Hedge Funds, Consulting Firms, IT Companies and other financial institutions.

You may work in Quantitative Research & Analysis, Development of Quantitative & Analytical Software, Building Valuation Models, Model Validation, Derivatives Structuring, Quant Trading, High Frequency Trading, Algorithmic Trading, Derivatives Trading.

What is the course calendar?

- This course is offered 2 times in a year.

How long has this program been around for?

- The first cohort of this program commenced in 2010.

What programming language does this program use?

- This program is entirely taught using Python.

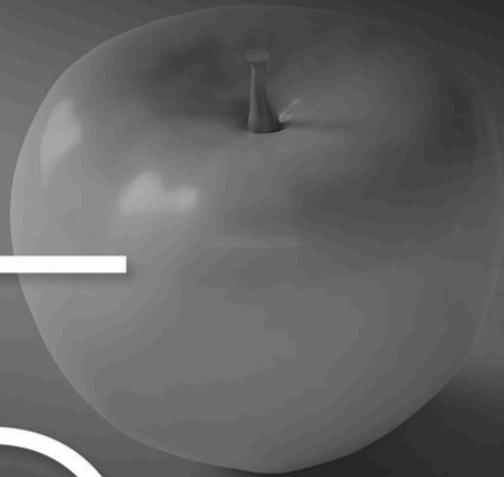
What mode of payments do you accept?

- We accept all online payment modes like Bank Transfer, Credit Card, Debit Card, UPI

Is EMI facility available?

- Interest Free EMI payment option is available through our NBFC partners.

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About CPFE Program

WHAT ALUMNI HAS TO SAY?



What IIQF Alumni has to say ?



<https://www.iiqf.org/testimonials.html>

View More Reviews
(SCAN THIS)



HARJINDER SINGH

- Software Development Engineer, Audible Inc., New York
- Previously Technology Analyst, Goldman Sachs, New York
- B. Tech. (PTU), AMFE

"I will recommend the 'Certificate Program in Applied Mathematics for Engineers' to those who want to start their careers in the field of quantitative finance. The program teaches you basics as well as advanced concepts of quantitative finance keeping you abreast with the latest developments in the field.

It also focuses on the practical implementation of the models using Excel/VBA. The faculty at IIQF is comprised of both academicians and practitioners who bring their research and experience into the teaching. This program has helped me understand the esoteric field of derivatives and pricing models. After completing my B. Tech. from Punjab Technical University, I was working as a Software Engineer in TCS, that is when I joined the CP-AMFE, it has certainly helped me enhance my career aspirations."



HARAPRASAD DASH

- Associate, Copal Amba (A Moody's Analytics Company)
- Previously Research Analyst, I-Peritus Solutions and Services
- M.Sc. (Computational Finance) (IMA)

"After completing my M.Sc in computational finance, I joined the AMFE program at IIQF. It was really a practical and industry oriented program. The things I learnt during the course helped me getting my first job at I-Peritus. The faculties are leading practitioners from the industry, IIQF also provides good placement support. Thanks for the guidance and support given by the IIQF faculty team for their guidance, which has really helped me in improving my interpersonal and technical skills that was required for cracking interviews. I will recommend this course to all those students who want to build a career in Quant/Structured product/Risk Management. In fact I have already recommended this course to my juniors."



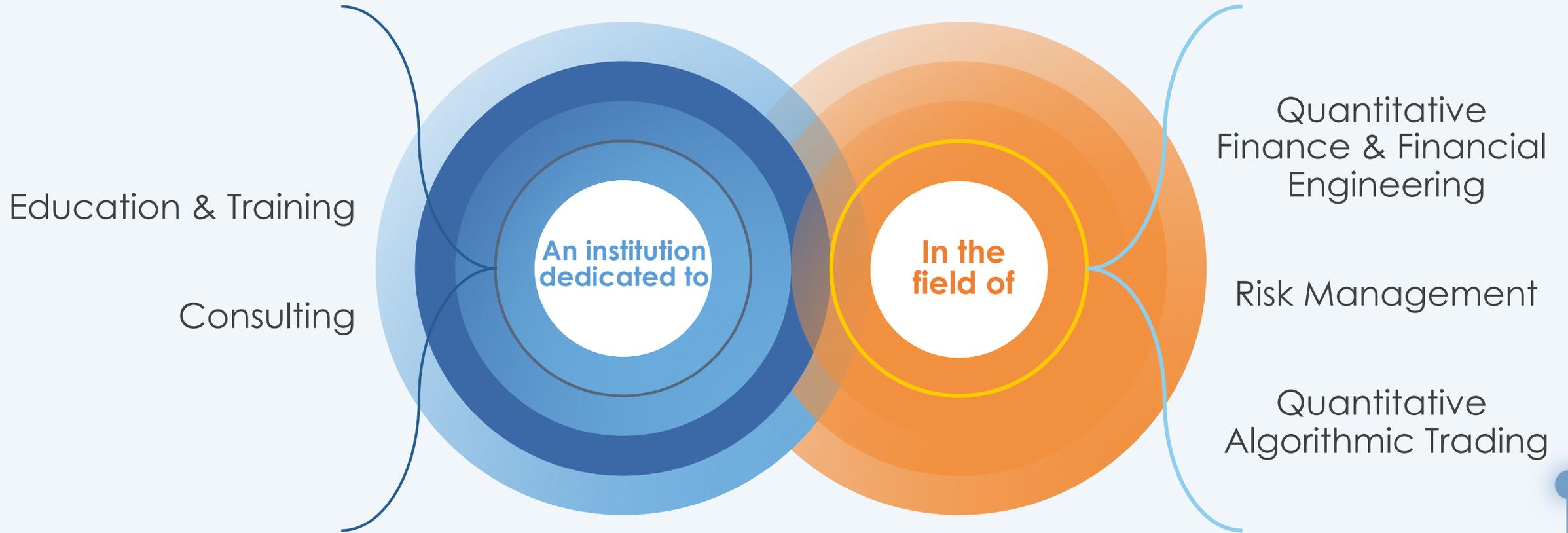
About

INDIAN INSTITUTE OF QUANTITATIVE FINANCE

FinoQ Executive Program
Indian Institute of Quantitative Finance



About Indian Institute of Quantitative Finance (IIQF)



Founded by pioneers in India and top experts from the field of Financial Risk Management, Financial Engineering and Investment Banking. An educational institution focusing on promoting education and training in the field of Financial Engineering, Quantitative Finance, Risk Management, Investment Banking, Algorithmic Trading, Derivative Products and several other areas of Modern Finance for more than a decade.



ABOUT US



View More on Website
(SCAN THIS)

<https://www.iiqf.org/aboutus.html>



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 from last 15 Years.

IIQF in partnership with HPC Links, a company specializing in High Performance and Parallel Computing technologies, develops Algorithmic Trading, Derivatives Valuations, Risk Analytics Solutions and Products using High Performance Computing technologies and infrastructure. It provides volatility trading strategy advisory service to derivatives trading desks of financial institutions.

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.

India's First Quant Finance Institute

You can contact us at : info@iiqf.org
Phone no. 022-28797660/ +91 9769860151



INDUSTRY PARTNERS



THOMSON REUTERS

Indian Institute of Quantitative Finance has partnered with Thomson Reuters to conduct Post Graduate Program in Financial Engineering

HPC Links

Indian Institute of Quantitative Finance has partnered with HPC links, a company specializing in high-performance parallel-computing technologies, for Software Development, Research and Consulting for Financial markets.



IIQF Directors were part of the Board of Studies of Mumbai University, engaged to modernize the curriculum of the Master of Management Studies program to make it more industry ready and also to design Masters Degree programs in Quantitative Finance.



INDUSTRY CLIENTS



IIQF has conducted 600,000+ man hours of training in Financial Engineering, Quantitative Finance, Investment Banking and Risk Analytics for large MNC and Indian financial institutions like:

JPMorgan

BNY MELLON

THOMSON REUTERS

ING BANK

Capgemini
CONSULTING. TECHNOLOGY. OUTSOURCING

Bombay Stock Exchange Limited
BSE
The edge is efficiency

LIC
भारतीय जीवन बीमा निगम
LIFE INSURANCE CORPORATION OF INDIA

citi

NSE
National Stock Exchange of India Limited

SS&C
GlobeOp

SOCIETE GENERALE



ACADEMIC INSTITUTIONS



IIQF has conducted training for students of academic institutions like IIT-Bombay, BITS Pilani, NITIE, etc.



IIT-Bombay



BITS Pilani
Hyderabad Campus

BITS Pilani



NITIE



Our Training Participants



Our open house programs have drawn participants from organizations like JP Morgan Chase, NSE, BSE, RBI, State Bank of India, Bank of Baroda, Nomura, KPMG, Deloitte, HSBC Bank, Deutsche Bank, Barclays Bank, Bank Of America, CITI Group, Merrill Lynch, Ernst & Young, Morgan Stanley, Motilal Oswal, India Infoline, Kotak Securities, IIM's, IIT's etc.



IIQF was awarded the
“BEST FINANCIAL RISK
MANAGEMENT
INSTITUTION OF THE
YEAR”
at the Asia Education
Summit and Awards
2017

Indian Institute of Quantitative Finance

Educational Awards won by IIQF



Mr. Abhijit Biswas our
Founder Director was
awarded the
“100 MOST
INFLUENTIAL
DIRECTORS OF INDIA
(EDUCATION)”
by World Education
Congress in 2016

Our Awards

In Photographs



IIQF was awarded the “National Education Leadership Award” by Dainik Bhaskar in 2013 for pioneering education in quantitative finance.



IIQF was awarded the “National Education Leadership Award” by Lokmat in 2014 for pioneering education in financial analytics.

Indian Institute of Quantitative Finance



Contacts

You can contact us in various way

Indian Institute of Quantitative Finance

Address:

Module No. 624, Mastermind IV,
Royal Palms IT Park, Goregaon (E),
Mumbai – 400065

Office Hours:

Weekdays : 10:00 AM - 7:30 PM
Saturdays & Sundays : 2:30 PM - 7:30
PM

Direct Contact Person:

Nitish Mukherjee : +91-9769860151

Phone: +91-22-28797660

Email: info@iiqf.org

<https://www.iiqf.org>

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Quant Finance Institute