Exotic Options

Overview

The objective of this programme is to give an all round comprehensive general knowledge and understanding of the theory and the day-to-day use of Exotic Options. Participants will learn how banks and corporate treasuries use Financial Options alike in the management of risks, for trading, hedging and arbitrage as well as their role in the day-to-day running of the finances of businesses. This course is intended to even those who do not have advanced mathematical training to gain as clear and deep an understanding as possible into the intricacies of Exotic Options.

Learning Outcome Statements

- Various aspects of exotic options
- Pricing mechanism
- Hedging & Risk management
- Volatility modeling
- Various numerical techniques for pricing Exotic options

Key Contents

- Introduction to Options pricing theory, Risk Management concepts and issues related to Hedging
    - Option Pricing
        - Black Scholes pricing equation, its origin and discussion on various variables used in pricing and its implications
        - Deterministic and Random Variables
        - Intrinsic and Time Value
        - Pricing Example and Issues
        - Necessity of Greeks
        - Use of Greeks
    - Option Hedging & Risk Management issues
    - Options Greeks
        - Understanding and calculating volatility
        - Problems with volatility
        - Relationship Between various Greeks
    - Call Put Parity Equations
    - Assumptions in Black Scholes pricing equations and its implications
    - Arbitrage in Options

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- o Why Exotic Options?
- Introduction to Exotic Options
  - o Simple Exotic Options & Products
    - Bermudan Options
    - Digital or Binary Options
    - Pay later or Contingent Premium options
    - Delayed Options
    - Chooser's Options
    - Power Options
    - Compound Options
    - Log Options
    - Cliquet or ratchet options
    - Shout Options
    - Soft Strike Options
    - Ladder Options
    - Path Dependent Exotic Options
    - Asian Options or Average Rate Options
    - Average Strike Options
    - Look Back Options
    - Barrier Options
    - Complex Barrier Options e.g. Double or multiple barrier Options
    - Options on Multiple Underlyings
  - o Discussion includes characteristics, pricing, comprehending Greeks and possible applications
    - Rainbow Options
    - Spread Options
    - Basket Options
    - Equity linked Foreign exchange Options or Quantos
- Volatility modeling
  - o Historical volatility
  - o Implied Volatility
  - o Accurately modeling the Smiles
  - o What does it mean?
  - o How to determine it?
  - o Reasons for term structure of volatility
  - o Effects of stochastic volatility on hedging of options
  - o Estimation of volatility
- Numerical Techniques in Pricing
  - o Monte Carlo Simulation Methods
    - For Pricing and hedging
    - Example of Monte Carlo Simulation
- Risk Management Strategies for Various Exotic Options
  - o Role of derivatives in risk management process
  - o Shadow Greeks and its applications
  - o Management of Exotic options book
  - o Option hedging models – Dynamic and Static Hedging of exotic options
  - o Toxicity of Exotic options and mechanism to manage them
  - o De-efficiencies of hedging models
    - Issues with Options hedging using Greeks
    - Limitations of conventional risk management process

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