

Derivatives and Risk Management

Course Content

1. Application of Derivatives for Risk Management & Speculation (Leveraging)

2. Futures & Forwards

Pricing & Valuation of Futures/Forwards

Risk Management using Futures

3. Mechanics & Properties of Options

4. Basic Option strategies

Risk Management

Protective Put

Covered Call

. Introduction to Option Valuation

Binomial Model for Valuation

Risk Neutral probabilities and their interpretation

Binomial Model s application for American options where the underlying pays the dividend

Black & Scholes Model

Understanding Weiner & Markov processes

Log-Normal distribution

ITO- LEMMA & its application in Stochastic processes

Using ITO -LEMMA - to derive Black & Scholes Model for stock / currency options

Interpreting the B & S formula

Seeing Option sensitivity to different variable using Excel

Understanding Options Greeks

Delta/Theta/Vega & Gamma risks of options

Understanding option Greeks for various trading strategies (volatility & Directional Spreads)

Delta/ Dynamic Hedging and relating the cost of Delta hedging with the option price determined by Black & Scholes - Model.

Elasticity (Beta) of an option in the CAPM framework. This would clarify the "risk return" profile (which is often misunderstood for various options trading strategies)

Options Volatility

Historical & Implied Volatility

Volatility Smile

Term Structure of Volatility

Some advance Models of volatility estimation

Value At Risk

Historical Simulation

Model Building Approach

Stress Testing & Back Testing

Reference Text :

1. Options, Future & Other Derivatives - by John. C. Hull
2. Applied Derivatives - Richard. J. Rendleman. Jr.
3. Option Volatility & Pricing - Sheldon Naten Berg
4. The New Options Market - Max Ansbacher
5. Derivatives - The Wild beast of Finance - Alfred Steinherr