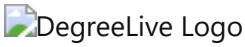

B.Com Honours | Semester VI | Calicut University

FINANCIAL DERIVATIVES

Course Code: COM6EJ301 • Module 3 Notes

Module III: Options Contracts, Pricing, Moneyness, & Option Greeks

Covers options mechanics, Call vs Put options, European vs American style, Option Premium breakdown, Put-Call Parity, Option Moneyness (ITM, ATM, OTM), Option Greeks, and trading strategies.

Unit 14: Options Overview, Parties, & Strike Price

Option Contract: Agreement giving buyer right (not obligation) to buy (Call) or sell (Put) underlying asset at specified Strike Price (K) on or before expiry date. Buyer pays Option Premium to Writer (Seller).

Unit 15: Types of Options (Call vs Put, European vs American)

Call Option: Right to Buy. **Put Option:** Right to Sell.
European Option: Exercisable only on expiration date.
American Option: Exercisable on any business day up to expiration.

Unit 16: Option Premium Breakdown (Intrinsic vs Time Value)

Option Premium Formula:
$ \text{Total Option Premium} = \text{Intrinsic Value} + \text{Time Value} $
Intrinsic Value (Call) = $ \max(0, S - K) $; Intrinsic Value (Put) = $ \max(0, K - S) $.

Unit 17: Put-Call Parity, Moneyness, & Option Chain

Put-Call Parity: $ C + K \cdot e^{-rT} = P + S $.
Moneyness: In-the-Money (ITM - positive intrinsic value), At-the-Money (ATM - $ S \approx K $), Out-of-the-Money (OTM - zero intrinsic value). Option Chain: Matrix showing live bids/asks & OI across strikes.

Unit 18: Option Payoffs & Option Greeks

Option Greeks Sensitivity Measures: Delta ($ \Delta = \frac{\partial C}{\partial S} $), Gamma ($ \Gamma = \frac{\partial^2 C}{\partial S^2} $), Theta ($ \Theta = \frac{\partial C}{\partial T} $ time decay), Vega ($ \nu = \frac{\partial C}{\partial \sigma} $ volatility), & Rho ($ \rho = \frac{\partial C}{\partial r} $).

Unit 19: Option Trading Strategies

Hedging & Speculative Strategies: Covered Call (Long Stock + Short Call), Protective Put (Long Stock + Long Put), Long Straddle (Long Call + Long Put at same strike K), & Bull Call Spread.

Practical Solved Problem 1 (Call Option Intrinsic Value & Time Value Breakdown): Stock Price $ S = ₹550 $. Call Option Strike $ K = ₹500 $, Trading Premium = ₹65. Put Option Strike $ K = ₹500 $, Trading Premium = ₹12. Calculate Intrinsic Value & Time Value for both Call & Put options.

Call IV = max(0, S - K); Put IV = max(0, K - S); Time Value = Premium - IV

Step-by-step Solution:

1. **Call Option (Strike ₹500):**

- Intrinsic Value = $ \max(0, 550 - 500) = \mathbf{₹50} $ (In-the-Money ITM).
- Time Value = $ 65 - 50 = \mathbf{₹15} $.

2. **Put Option (Strike ₹500):**

- Intrinsic Value = $ \max(0, 500 - 550) = \mathbf{₹0} $ (Out-of-the-Money OTM).
- Time Value = $ 12 - 0 = \mathbf{₹12} $.

Practical Case Framework 2 (Option Greeks Sensitivity Reference Matrix): Detail Option Greek symbol, underlying sensitivity risk factor, and practical trading interpretation.

Option Greeks Risk Sensitivity Table:

Option Greek	Underlying Sensitivity Factor	Practical Trading Interpretation
Delta ($Delta$)	Underlying Spot Price (S) Change	Rate of change of option price per ₹1 move in spot
Gamma ($Gamma$)	Delta ($Delta$) Change per Spot Move	Acceleration of Delta as spot price fluctuates
Theta ($Theta$)	Time Decay (T remaining to expiry)	Daily erosion of option time value (negative for buyers)
Vega ($ u$)	Implied Volatility ($sigma$) Change	Option price sensitivity per 1% change in volatility