

## FC 502: FINANCIAL DERIVATIVES

### Course Objectives:

To equip students with principles and techniques of financial derivatives, its trading and strategic application. It also discusses the Complex Derivatives like Greeks & Exotic Options, Financial Swaps etc.

### Learning Outcomes:

After completion of this paper:

- Students will understand the need of financial derivatives.
- It will enable the students to select right kind of derivatives amongst forward, futures, options, Greeks, swaps for risk hedging.
- Understand the option pricing models.
- Able to distinguish among hedging, speculation and arbitrage.

### Course Contents:

#### Unit I (2 weeks)

Introduction: History of derivatives, origin of derivatives in India, the classification of derivatives, the important features of derivatives. Early delivery, extension & cancellation of forward contracts. Basis risk, why hedge. Currency futures and its hedging strategies. Derivatives trading in India.

#### References:

Chapter 1 (Section 1.6)– [S.L Gupta]

Chapter 5 (Section 5.1-5.4)– [S.L Gupta]

<https://www.fedai.org.in/>; P.G. Apte

Chapter 3 (Section 3.1-3.3) - [J.C Hull]

Chapter 5 (Section 5.10) - [J.C Hull]

#### Unit II (2 weeks)

Options and its type, Factors affecting option Prices, upper bounds, lower bounds, early exercise, put & call parity, put & call parity (dividend effect). Trading strategies involving options: Spreads, combinations, payoffs; binomial model: One Period, Two Period and multiple Period. Black-Scholes option model. Naked & covered position, options given by financial institutions, Stop loss strategy portfolio insurance

#### References:

Chapter 10 (Section 10.1, 10.3) - [J.C Hull]

Chapter 11 (Section 11.1-11.4) - [J.C Hull]

Chapter 12, (Chapter 12.1-12.5) - [J.C Hull]

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Chapter 13, (Chapter 13.1, 13.3-13.8) - [J.C Hull]

Chapter 15, (Chapter 15.1 - 15.9) - [J.C Hull]

### Unit III

(3 weeks)

The Greek Letters: A Stop Loss strategy; Delta Hedging, Delta of European Stock Options; Delta of a portfolio; Theta of a portfolio; Gamma: Making a portfolio Gamma Neutral.

#### References:

Chapter 17 of J.C Hull

### Unit IV

(2 weeks)

Understanding of Interest rate swap, currency swaps & cross currency swaps. Understanding and types of Exotic Options. Credit Derivatives: Credit ratings, Default intensities, Recovery rates, estimating default probabilities from bond prices; Credit Default Swaps (CDS).

#### References:

Chapter 7, 24 and 28 of J.C Hull

#### Text Books:

1. John C. Hull. Options, Futures and Other Derivatives (latest ed.). Pearson Education.
2. Gupta, S.L, Financial Derivatives: Theory, Concepts and Problems (latest ed.), PHI Learning Publications.

#### Additional Readings:

1. Jurgen Franke, Wolfgang Hardle and Christian Hafner. Introduction to Statistics of Financial Markets.
2. R. Madhumathi, M. Ranganatham. Derivatives and risk management (1st ed.) Redhead, K. Financial Derivatives- An introduction to futures, forwards, options, swaps. Prentice Hall of India

#### Teaching Learning Process:

Class room lecture, Case study discussion, Numerical Problem solving, Class presentation on the assigned topic by students individually or in group, Workshop, Tutorials, Role play

## FINANCIAL DERIVATIVES

### Assessment Method:

1. Internal evaluation of 25% marks
  - a. Attendance 5% marks
  - b. Two internal evaluations by the teacher with 10% marks each out of which one must be a class test and other may be another test or home assignment or presentation. Faculty may take more than two assignments and (or) tests but total will be only 20% marks.
2. End term University Exam of 75% marks

### Key words:

Forward contracts, Futures, Options, Financial Swaps, Greeks, Exotic Options