DISCIPLINE SPECIFIC ELECTIVE (DSE) COURSES

DSE 13: ADVANCED DERIVATIVES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Advanced Derivatives DSE-13	**4**	**3**	**1**	**0**	**Class XII**	**Basic Derivatives**

Course Objectives:

- To equip students with understanding and implications of Greeks, Financial Swaps and Cryptocurrencies.

Learning Outcomes:

After studying the course the student will be able to:

- Understand Greeks, Financial Swaps, Cryptocurrencies etc.
- Understand Interest rate Futures
- Understanding of Exotic options
- Understand the concept of hedging, speculation and arbitrage.

Unit 1: Greeks **(12 hours)**

Calculation of delta, gamma, rho, theta and Vega for stock options (with and without dividend) and currency options. Relationship and comparison among stock Greeks. Delta Hedging, Gamma Hedging. Making a portfolio Delta Neutral, Gamma Neutral, Delta positive Gamma Neutral and Delta positive Gamma Neutral.

Unit 2: Swaps & Interest rate Futures **(9 hours)**

Introduction to Swaps, Interest rate swaps, currency swaps, cross-currency swaps. Understanding Credit default swaps (CDS), Valuation of CDS. CDS: Forwards and Options. Interest rate Futures, Interest rate cap and floor, FRA.

Unit 3: Exotic options **(12 hours)**

Nonstandard American options, Gap options, Forward start options, Cliquet options, Compound options, Chooser options, Barrier options, Binary options, Lookback options, Shout options, Asian options, Options to exchange one asset for another, Basket options.

Unit 4: Weather, Energy and Insurance Derivatives: (12 hours)

Introduction to Weather derivatives, Understanding HDD & CDD and its calculation. Energy Derivatives: Trading of Crude Oil, Natural Gas and Electricity, Modeling Energy prices, Understanding Insurance derivatives.

Essential Readings:

1. John C. Hull. Options, Futures and Other Derivatives (Eighth ed.). Pearson Education.

Additional Readings:

1. JurgenFranke, 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

3. McDonald, Derivatives Markets, (latest ed.), Pearson.

4. Robert Reitano, 2010, Introduction to Quantitative Finance, MIT Press.

Examination scheme and mode:

Evaluation scheme and mode will be as per the guidelines notified by the University of Delhi.

DSE 15: INFRASTRUCTURE FINANCE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Infrastructure Finance DSE-15	4	3	1	0	Class XII	Financial Management

Course Objective:

- To equip the students to understand the basic project financing framework; the rationale for using project financing as opposed to direct conventional financing; the identification and management of risks associated with a large scale project; evaluating a project's viability using analytical tools; sources of project funds; using public-private partnerships as a mode of