# NOC:Probability and Stochastic for Finance II - Video course

## COURSE OUTLINE

This course provides the minimum mathematical requirements to study mathematical finance or more precisely the pricing of financial derivatives.

## COURSE DETAIL

| Week | Topics |
|---|---|
| 1. | Fundamentals of Interest Rate<br>Fixed income securities<br>Term structure of Interest rate-I<br>Term structure of Interest rate-II<br>Optimization problems in Finance |
| 2. | Crash course on Karush-Kuhn-Tucker Conditions<br>Mean Variance Portfolio Optimization<br>Marketing Model & Related Issues<br>The Capital Asset Pricing Model-I<br>The Capital Asset Pricing Model-II |
| 3. | The Basics of Financial Markets & Financial Derivatives<br>Binomial Trees and Arbitrage<br>Pricing Options using Binomial Trees-I<br>Pricing Options using Binomial Trees-II<br>Girsanov's Theorem |
| 4. | Black Scholes Formula:The Risk Neutral Approach<br>More on Black Scholes Formula<br>Dividend Paying Stocks<br>Pricing Forwards & Futures-I<br>Pricing Forwards & Futures-II |

**References:**

NP-TEL

NPTEL

http://nptel.ac.in

## Humanities and Social Sciences

**Pre-requisites:**

Mathematics should be at least a course among the minor subjects.

**Coordinators:**

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