

## **ELECTIVE COURSE**

### **Course Title:**

RISK IN EQUITY AND FIXED INCOME MARKETS (REFI)

### **Course Description:**

This course will provide a good foundation in key concepts of risk and portfolio management. This course has been designed such that it covers a lot of concepts that are used by the industry. Topics covered include Capital markets, understanding financial products, risk management etc. Mastery of concepts in this course is an absolute must from the point of view of campus/internship interviews as well as later when a candidate begins working on various projects in the industry.

### **Instructor Information:**

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### **Course Objectives:**

Successful completion of course makes the students well equipped with the concepts of:

- Fundamentals of capital markets
- Learn fixed income, rates analytics, risk sensitivities of fixed income assets
- Forward contracts valuation and applications
- Futures contracts and hedging with futures
- Options fundamentals – discrete and continuous time models
- Foundations of risk management
- Fundamentals of portfolio management
- Building blocks of risk capital and regulations

### **Course Content:**

1. Introduction to Capital Market
  - Ecosystem of capital markets
  - Primary and Secondary Markets
  - Major participants of the markets
  - Purposes of primary and secondary markets
2. Knowledge of Bond Markets
  - Understanding the product
  - Properties and types of bonds
  - Prospectus, Covenants etc.
  - Concepts of yields, spreads, prices
  - Brief on investment portfolio of a bank
3. Knowledge of Equity Markets
  - Important of Equity investments

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- Meaning of Equity indices, approaches
  - Equity beta and its relevance
4. Bonds: Rates & Risk
    - Spot rates
    - Forward Rates
    - Duration - types, Convexity
    - PV01, forward PV01 etc.
  5. Overview of Derivatives
    - Types of Derivatives
    - Properties of various derivatives
    - Overview of OTC and Exchange markets
    - Key applications of derivatives
  6. Basics of Portfolio Management
    - Basics of fund management
    - Types of funds
    - Portfolio management principal
    - Systematic/un-systematic risk
    - Optimization ideas for portfolio management
  7. Building Blocks of Risk Management
    - Meaning of Risk
    - Role of risk on Org structure
    - Risk as a value adding function
    - Types of Risks
    - Risk Measurement process
    - Role of tech in risk
  8. Understanding Risk Management in Banks
    - Capital adequacy
    - CVA, off-balance sheet
    - Illiquidity adjustments etc.
    - Basics: LCR, NSFR, liquidity risk
  9. Forward contracts
    - No-arbitrage forward price
    - Pricing forward contracts
    - Applications of forward contracts
  10. Futures contracts
    - Margining in futures

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- Types of orders in futures
- Futures for risk management

### 11. Options contracts

- Put-call parity & no-arbitrage
- Understand basics of options models
- Discrete time vs Continuous time models
- Model development of an option pricer

### 12. Value at Risk (VaR)

- Meaning of VaR
- Approaches to calculate VaR
- Applications of VaR

## **References:**

Following reference books will be useful during the foundation as well as core portion of this course.

- Financial Institutions and Markets – McGraw Hill publications
- Options, Futures and Other Derivatives by John C Hull
- Security Analysis and portfolio management – Prentice Hall / Pearson Education
- Handbook of Fixed Income Securities, Fixed Income Mathematics by Frank Fabozzi

Additionally, students are advised to familiarize themselves with the Indian capital markets and with the products that trade (key resources include: NSE, CCIL, FBIL, FIMMDA). Also, it would be helpful to keep track of the announcements on RBI/SEBI websites as they directly impact the banking system/capital market in the country. Further, students are encouraged to do practical hands-on implementation in Excel/VBA/Python or any other tool in their own time, in order to be comfortable on the implementation of various concepts discussed in class.

Throughout the duration the course, candidates are expected to be updated on the developments in the finance, capital markets domain. The same will add value to discussions in class and help students get a good grasp of the subject. A few resources recommended:

- ET/FT,
- Bloomberg markets website,
- Risk magazine (there are a few free articles),
- Economist (slightly older issues can be accessed for free)