

INTERNATIONAL MANAGEMENT INSTITUTE, BHUBANESWAR
FN607: Financial Engineering and Risk Management
PGDM 2015-17 Term IV
CREDIT: Full (3 credits) SESSION
DURATION: 90 Minutes

Instructor: Prof. Padmini Jindal
Telephone: 0674-3042138
E-Mail: padmini@imibh.edu.in

Introduction

Risk management is an underlying motivation behind the need to create the synthetic exposures through financial engineering. This may apply to a corporate with a hedging motivation that wants to reduce an existing risk exposure by engineering a synthetic with an opposite exposure. This may also apply to a corporate with a speculation motivation that wants to engineer a synthetic to take on a certain risk exposure based on a view of the uncertainty in the price of an underlying asset.

Learning Outcomes:

The basic purpose of Financial Engineering and Risk Management course is to develop understanding of concepts, issues and strategies for management of risk. It will develop necessary skills to identify and measure risk, quantify risk and create risk response strategies for suitable decision making for market and credit risk.

This course assumes a detailed understanding of derivative instruments encompassing futures, swaps, and options. At the end of the course the students should be able:

1. To measure an organization's risk exposure to market risk and credit risk
2. To develop a hedging strategy in line with an organization's existing risk exposures
3. To determine the custom exposures to risk factors an organization must take to implement its hedging strategy
4. To value financially engineered instruments such as mortgage-backed securities and collateralized mortgage obligations.

Pedagogy

The course would be based on the classroom lectures and spreadsheet modeling.

Evaluation Criteria (%)

Quizzes (2)	20
Class Presentation	20
Class Participation	10
End-term Exam	50
Total	100

Reading Material

Text book

1. Hull, J. C. & Basu, S., Options, Futures and Other Derivatives, Pearson Education India, 2010.

Reference books

1. Veronesi, P., Fixed Income Securities-Valuation, Risk and Risk Management, Wiley India, 2010.
2. Hull, J. C., Risk Management and Financial Institutions, 3rd Edition, Wiley India, 2013 (Low Price Edition).

Session Plan

Session No.	Topic	LEARNING OUTCOME	Reading from text book
1	Introduction to Derivatives	LO 1, 2, 3	Hull: Chapter 1 (Text book)
2-3	Mechanics of Futures Markets; Interest Rate Futures	LO 2, 3	Hull: Chapter 2 & 6 (Text book)
4-6	Interest rates & Interest rate risk management	LO 2, 3	Hull: Chapter 4 (Text book)
7-9	Interest rate swaps, Forward Rate Agreements & Currency Swaps	LO 2	Hull: Chapter 4 & 7 (Text book)
10	Mechanics of Options Markets	LO 2	Hull: Chapter 8 (Text book)
11-13	Binomial Trees & The Black-Scholes-Merton Model; Trading Strategies involving Options	LO 1, 2, 3	Hull: Chapter 10, 11 & 13 (Text book)
14	Measuring Volatility; Value at Risk Measure, Market risk measurement (Historical Simulation Approach)	LO 1, 3	Hull: Chapter 13 & 20 (Text book)
15	Market Risk VaR: Model Building approach	LO 1	Hull: Chapter 20 (Text book)
16-18	Financial Engineering-Basics of Mortgage Backed Securities, Collateralized Mortgage Obligations	LO 3, 4	Veronesi: Chapter 8
19-20	Presentations & Review of the Course		

Note: The session plan is subject to change.