

e-learning and reference solutions for the global finance professional

# Financial Mathematics

A comprehensive e-learning product dealing with the fundamental concepts in finance such as Time Value of Money, Yield Measures and Bond Pricing.

After completing this course, you will be able to:

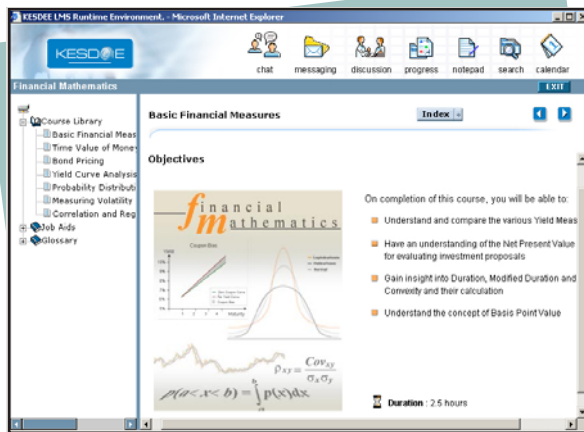
- Understand the dynamics of cash flows
- Calculate the various yield measures such as current yield & yield-to-maturity
- Calculate the price of option-free bonds and price/volatility characteristics of bonds with embedded options
- Comprehend volatility and correlation and methods to calculate them



# FINANCIAL MATHEMATICS

## Overview

Financial Mathematics is a building block to learners in the field of finance. The topics expose the user to fundamental concepts such as cash flows, present value, future value, yield and probability that form the basis for further advanced learning.



### **Course Level & Number of Courses**

Basic Level

Library of 7 Courses

### **Instructional Method**

Dynamic, Interactive e-learning

### **Recommended Background**

Familiarity with basic financial concepts

### **The themes of this product are:**

- Evaluate cash flows at various points in time
- Gain an insight into basic financial measures such as current yield, yield-to-maturity and total return analysis
- Analyze the mechanics of bond pricing and issues involved therein
- Understand the concepts of volatility and correlation in financial asset prices

For more information, please visit:

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# FINANCIAL MATHEMATICS

## Library of 7 Courses

**Time taken to complete each Course: Two - Three hours**

### **1. Basic Financial Measures**

- Objectives
- Yield Measures
- Total Return Analysis
- Net Present Value
- Duration
- Convexity
- Price Value of a Basis Point

### **2. Time Value of Money**

- Objectives
- Introduction
- Future Value of Money
- Present Value of Money
- Future Value of Annuities
- Present Value of Annuities
- Present Value of Perpetuities
- Amortization

### **3. Bond Pricing**

- Objectives
- Pricing of Option-free Bond
- Pricing of Floater/Inverse Floater
- Price Determination between Coupon Periods
- Yield Analysis
- Price Volatility

### **4. Yield Curve Analysis**

- Objectives

## Library of 7 Courses

- Introduction to Yield Curve Analysis
- Types of Yield Curves
- Analyzing Yield Curve
- Bond Arbitrage Strategies
- Application of Yield Curves

### 5. Probability Distributions and their Properties

- Objectives
- Introduction
- Types of Probability Distribution

### 6. Measuring Volatility

- Objectives
- Review of Concepts
- Normal Distribution
- Introduction to Volatility
- Estimating Volatility

### 7. Correlation and Regression Analysis

- Objectives
- Introduction to Correlation
- Calculating Correlation
- Regression Analysis

# FINANCIAL MATHEMATICS

## JOB AID

- Measurement Tools

### Calculators in Financial Mathematics

1. Amortization
2. Convexity
3. Basis Point Value
4. Current Yield
5. Duration of Bond
6. Net Present Value
7. Present Value of uneven series
8. Simple Linear Regression
9. Time Value of Money
10. Total Return
11. Yield-to-Call
12. Yield-to-Maturity
13. Price of Option-free Bond
14. Future Value of uneven series
15. Dirty Price and Clean Price
16. Internal Rate of Return
17. Payment Calculator

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4. Financial Mathematics	Library of 7 Courses
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6. Capital Adequacy Planning (Basel I)	Library of 7 Courses
7. Basel II-University	Library of 63 Courses
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- Mortgage Finance

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