
Finance for Non-Finance Professionals

Overview

To familiarize the participants with the basic mathematics used in day-to-day financial world. This course has been designed to ensure that those who do not have any previous background will understand the key concepts related to financial mathematics. Finance and mathematics compliment each other as subjects, hence a more comprehensive understanding of finance requires a mathematical infrastructure.

Learning Outcome Statements

- Understand Basic Financial Mathematics
- Understand various financial instruments traded in the market place
- Understand basic pricing, valuation & risk management techniques
- Understand bond, equities & project evaluation

Key Contents

Basic Mathematics in Finance

- Simple powers
- Square root & higher order roots
- Summation & Products
- Maximum & minimum
- Exponential & Logarithms
- Continuous Compounding equation
- Discrete and Continuous compounding
- Examples

Basic Statistics & Probability

- Basic statistics
- Statistics and its application in Banking
- Role of statistics in finance
- Data Classification
- Data analysis
- Single variable statistics – measurement and analysis
- Multiple variable statistics – measurement and analysis

- Understanding returns
- Graphical data presentation and interpretation
 - Histogram
 - Probability distribution function
 - Probability Density function
- Some important statistical measures
 - Mode
 - Median
 - Average or mean value
 - Variance
 - Standard deviation
- Application of statistics to measure market conditions
- Understanding normal distribution and other important distributions
- Standard normal distribution
- What is volatility & its application in our business
 - Estimation of volatility using historical data
 - Conversion of volatility
- Understanding confidence interval
- Multiple variable market condition measurement
 - Covariance
 - Correlation coefficient
 - Application of correlation to finance
- Variance of two variables
- Variance of multiple variables
- Correlation matrix
- Performance ratios
 - Sharpe ratio
 - Sterling ratio
- Basic probability calculations
 - Conditional probability
 - Bayes theorem and its application to finance
- Basic regression analysis and its application

Practical exercises on EXCEL – Application to Finance

Time Value of Money and Cash flow Analysis

- Simple Money Market calculations
- Time value of money – mathematics
- Why money has time value?
- Basic concepts – Simple interest cash flow diagrams
- Mathematics – Simple interest calculations
- Basic concepts – Compound Interest calculations
- Impact of compound interest
- Mathematics – Compound interest Calculations
- Example – Compound Interest Calculations
- Concept of present value & discount factor
- Concept of annuity
- Annuity – Cash flow diagram
- Future values & Annuities & concept of Sinking Fund
- Future values and Annuities and Sinking fund factor
- Present values and Annuities
- Annuity present value factor
- Perpetual Annuity

- Discount rate and Interest rate
- Cost of Capital and related analysis

Practical exercises on EXCEL

Bond Valuation

- Yield & yield curve – why yield curve is important?
- Example – Saudi Riyal yield Curve
- Yield to maturity
- Present value of bond
- Bond price
- Bond price Calculations
- Solving Bond's YTM given its price
- Approximate Yield to Maturity (YTM)
- Price yield relationship of a bond
- Bond Duration & Convexity
- Risk in a Bond

Practical exercises on EXCEL

Equity Valuation

- Basics of equity valuation
- Some valuation conventions
- Price earnings ratio
- Analysis of price earnings ratio
- Determining an appropriate P/E Ratio
- Estimating intrinsic value
- Examples

Practical exercises on EXCEL

Project Evaluation and Analysis

- Basics of project financing
- Analysis and evaluation
- Key factors leading to good analysis
- Risk and return analysis
- Application of Analytical tools in project evaluation
- Example