

College of Engineering, Pune
Department of Mathematics
(MA) Applied Finance

Minor Certification in Mathematics with specialization in 'Financial Engineering' (Semester VIII)

Teaching Scheme
Lectures : 3 hrs / week

Examination Scheme
Internal Test 1: 20 marks
Internal Test 2: 20 marks
End Sem. Exam: 60 marks

Objectives : The student will be able to Build models, appraise projects and create optimal portfolio using EXCEL.

Unit I : Introduction to the macroeconomic environment and policy players. **[4 Hrs]**

Unit II : Understanding Advanced Features of Excel : Database Functions in Excel, Creating Charts, Using Forms and Control Toolbox, Understanding Finance Functions present in Excel, Creating Dynamic Models. **[5 Hrs]**

Unit III : Sensitivity& Scenario Analysis using Excel : What if Analysis-data tables, Scenario Manager, goal seeking. **[4 Hrs]**

Unit IV : Simulation using Crystal ball 2000, Excel add in:Monte Carlo Simulation, Different Statistical Distributions used in Simulation, Generating Random Numbers that follow a particular distribution, Building Models in Finance using Simulation. **[5 Hrs]**

Unit V : Excel in Accounting : Forecasting Financial Statements using Excel, Financial Ratio analysis using Excel. Creating Fixed Asset & Debt Schedule on Excel. **[7 Hrs]**

Unit VI : Excel in Project Appraisal : Determining Project Viability, Risk Analysis in Project appraisal, Simulation in Project Appraisal. **[4 Hrs]**

Unit VII : Excel in Valuation : Determination of Value Drivers, DCF Valuation, Risk Analysis in Valuation. **[4 Hrs]**

Unit VIII : Excel in Portfolio Theory : Determining Efficient Portfolio, Creating Dynamic Portfolios, Application of solvers and Crystal ball 2000 in portfolio optimization. **[7 Hrs]**

Text Books :

- **Financial Modeling by Simon Benninga**
- **Financial Analysis and Modeling using Excel by Chandan Sen Gupta**

Reference Books :

- Financial Modeling by Simon Benninga
 - Principles of Finance with Excel by Simon Benninga
 - Financial Analysis and Modeling Using Excel and VBA(Wiley Finance)
By Chandan Sengupta
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Outcomes : Students will be able to

1. Know and recall the core Knowledge of the syllabus.
2. Understand and recall the working of Applied Finance.
3. To analyze the changes in Applied Finance.
4. To reason out the changes in Applied Finance.
5. To apply core concepts to Applied Finance.