

**College of Engineering, Pune**  
**Department of Mathematics**  
**( MA ( MI ) 18005 ) 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. **analyze** the changes in Applied Finance.
4. **reason out** the changes in Applied Finance.
5. **apply** core concepts to Applied Finance.