SVKM's NMIMS Deemed-to-be University
Mukesh Patel School of Technology Management and Engineering
Technology Management Department

w.e.f. 2022-23

Program: MBA Tech	**Semester:** X
Course: Financial Analytics	**Code:** MBAB10009

Teaching Scheme				Evaluation Scheme	
Lecture (Hours per week)	**Practical (Hours per week)**	**Tutorial (Hours per week)**	**Credit**	**Internal Continuous Assessment (ICA)**	**Term End Examinations (TEE)**
2	---	---	2	Marks 100	--

Prerequisite: Spreadsheet Modelling, Financial Management, Fundamentals of Accounting

Course Objective

1. To develop skills for valuation of Businesses by using MS- Excel
2. To develop a basic understanding about financial analytics.
3. To know how to deal with time series data using R codes to generate forecasting models that can be applied to enhance business performance.
4. Utilize an overview framework of financial analytics to portfolio of assets using actual stock price data while optimizing risk and reward

Course Outcomes

After completion of the course, the student will be able to -

1. Understand use spreadsheet and R software for valuation of Businesses.
2. Apply time series data for financial forecasts, and determine the efficacy of the estimates.
3. Create a portfolio of assets using actual stock price data while optimizing risk and reward.

Detailed Syllabus

Unit	Description	Duration
1	**Quick introduction to Excel and financial forecast model** • Creating a financial Model Template	2
2	**Modeling Historical Statement** • Input historical numbers • Income statement and Balance sheet **Modeling Assumptions for Future Action** • Revenue drivers • Cost drivers	2
3	**Projecting Financials and Estimating Costs for** • Modeling revenue build-up • Modeling cost build-up • Modeling Depreciation Schedule	2
4	**Projecting Financials**	2

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	• Modeling Working Capital Schedule • Modeling Cash flow statement • Debt Schedule, Circular References, and Finalizing the Model	
5	**Discounted cash flow analysis** • Weighted Average Cost of Capital (WACC) • Cost of Debt • Cost of Equity • Market Risk Premium Performing Valuation and Sensitivity Analysis and Scenario Analysis	2
6	**Comparable company analysis** • Book Value • Market Value • Enterprise Value • Multiples	2
7	**Credit Risk Modeling using Spread sheet** • Altman Z- score • KMV Model Springate Model	2
8	**Modern Portfolio Creation using Spread sheet** • Volatility of a Portfolio • Correlation and Covariance • Efficient Frontier/Minimum Variance Portfolio • Defining decision variables • Defining the Objective Function • Defining the constraints Implementing the Model	2
9	**Bond portfolio creation using spreadsheet** • Defining decision variables • Defining the Objective Function • Defining the constraints Implementing the Model	2
10	**Project selection using Spread sheet**	**2**

	• Defining decision variables • Defining the Objective Function • Defining the constraints Implementing the Model	
11	**Introduction to Analytics and Financial Analytics, Quick introduction to R** • Installing R Package: quantmod • Understanding data in finance, sources of data • Retrieving data from FRED/Yahoo	2
12	**Understanding stock price behaviour, time series analysis in finance** **Exploratory Data Analysis in Finance using R** • Cleaning and pre-processing data • Calculating Returns/ Log returns ▪ Daily ▪ Weekly ▪ Monthly	2
13	**Building Models using Accounting Data** • Calculation of Standard Deviation (SD) • Calculating of Value at Risk (VaR) • Calculation of Expected shortfall (ES) **Elements of Forecasting** • Moving Average • Simple Moving Average Exponential Smoothing	2
14	**Stationarity, Differencing, and** **Stationarity Testing** • Augumented Dickey-Fuller **Order of Integration** • Differencing • Second-Order Differencing • Seasonal Differencing **Forecasting stock prices using machine learning** **ARIMA Model**	2

	• Non-seasonal ARIMA model (p,d,q) Seasonal ARIMA model (P, D, Q) m	
15	**Introduction to Algorithmic Trading** Major algorithmic trading strategies: • Mean Reversion • Momentum Strategy • Statistical Arbitrage • Trend Following Strategy Back testing	2
	Total	**30**

Reference Books:

- Goel Vikas, *Handbook on Valuation of Securities and Financial Assets*, 2e, Bloomsbury,2019
- Samsuddin Asha, *Financial Modeling Manual*, 1e, BG consulting ,2015
- Paul Pignataro, *Financial Modeling and valuation* 1e, Wiley India , 2013

Internet references

Software:

- MS EXCEL
- R programming Software (Open source)
- Wi-fi connectivity for live cases

Signature
(Head of the Department)

Signature
(Dean)