



**PARVATHANENI BRAHMAYYA  
SIDDHARTHA COLLEGE OF ARTS & SCIENCE**  
*Autonomous*  
Siddhartha Nagar, Vijayawada-520010  
*Re-accredited at 'A+' by the NAAC*

<b>Course Code</b>				<b>22ANDSL305</b>			
<b>Title of the Course</b>				<b>FINANCIAL MANAGEMENT ANALYTICS</b>			
<b>Offered to:</b>				<b>MBA Business Analytics</b>			
<b>L</b>	<b>3</b>	<b>T</b>	<b>0</b>	<b>P</b>	<b>0</b>	<b>C</b>	<b>3</b>
<b>Year of Introduction:</b>		<b>2024-25</b>		<b>Semester:</b>		<b>3</b>	
<b>Course Category:</b>		<b>Domain Specific</b>		<b>Course Relates to:</b>		<b>GLOBAL</b>	
<b>Year of Revision</b>				<b>Percentage of Revision of syllabus:</b>		Not Applicable	
<b>Type of the Course:</b>				Skill Development			
<b>Crosscutting Issues of the Course:</b>				Employee Engagement and Organizational effectiveness			
<b>Pre-requisites, if any</b>				Basic knowledge of finance, statistics, and proficiency in tools like Excel.			

**Legends:**

L: Lecture; T: Tutorial; P: Practicum/Practical/Project; C: Credits

**Course Description:**

This course introduces the fundamental concepts and techniques of financial analytics, equipping students with the skills to analyze financial data and solve real-world financial problems. Students will learn how to apply statistical tools, and predictive models to assess financial performance, manage risks, and make strategic investment decisions. This course covers a variety of topics including portfolio optimization, risk management, time-series forecasting, and credit scoring. Using tools like Excel, R, Python, and specialized financial software, students will gain hands-on experience with data visualization, predictive modeling, and scenario analysis in finance. By the end of the course, students will have the ability to extract insights from large financial datasets, optimize investment strategies, and apply data-driven decision-making in various financial contexts.

**Course Aims and Objectives:**

S.NO	COURSE OBJECTIVES
1	learn how to collect, process, and interpret financial data from various sources.
2	Develop the ability to apply quantitative techniques, models, and algorithms to analyze financial data for effective decision-making.
3	Understanding and measuring financial risks and applying analytical techniques to mitigate them.
4	Apply optimization techniques to manage and allocate assets effectively, ensuring a balance between risk and return.
5	Analyze and evaluate investment opportunities, portfolio management, and asset allocation strategies.

**Course Outcomes**

At the end of the course, the student will be able to:

CO NO.	COURSE OUTCOME	BTL	PO	PSO
CO1	Understand the principles of financial analytics and its applications in decision-making.	K2	1,2	1,2
CO2	Perform quantitative analysis of financial data using statistical and computational methods.	K1	1,2	1
CO3	Analyze risks and returns in investments and portfolios.	K3	1,2	2
CO4	Develop and evaluate predictive models to forecast financial trends.	K3	6,7	2
CO5	Utilize financial data for valuation, risk management, and performance evaluation.	K3	3,6,7	1,2

For BTL: K1: Remember; K2: Understand; K3: Apply; K4: Analyze; K5: Evaluate; K6: Create

CO-PO-PSO MATRIX									
CO NO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO1	3	3						3	3
CO2	3	3						2	
CO3	3	3							3
CO4						2	3		3
CO5			2			2	3	3	2

Codes 3, 2, 1 for High, Moderate and Low correlation Between CO-PO-PSO respectively

**Course Structure:**

**UNIT-I: INTRODUCTION FINANCIAL ANALYTICS**

(15 Hrs.)

Meaning and Importance of Financial analytics. Types of Financial Analytics. (Descriptive, Diagnostics, Predictive, Prescriptive) Financial Analysis Tools and Techniques. Understanding spread sheet for Financial Analytics , Parts of the Spread sheet Screen, Navigating the Worksheet, Entering formulae, Using Spread sheet Built in functions.

**Exercises:**

- Define finance analytics. Explain its types for available financial data with analysis.

- Students will use historical data to create a predictive model that forecasts future financial metrics, such as next year's revenue or earnings. They should explain the assumptions behind their model and discuss potential limitations.
- Teach students how to visualize stock price data, calculate moving averages, and identify trends using basic time series analysis techniques.

**UNIT-II: INTRODUCTION TO INVESTMENT, CONCEPT OF RETURN AND RISK (15 Hrs.)**

Concept of Investment, Process, Objectives and Constraints. Investment Classification. Financial markets (Primary & Secondary), Instruments. Trading, Clearing and Settlement procedure. Market Indices. Concept of Return and Calculation of return. Stock valuation models and Dividend discount models. Concept of Risk and Types of risk. Measurement of risk.

**Exercises:**

- Assign each student or group of students a virtual amount of money (e.g., \$100,000) to invest in the stock market. They will research stocks, decide which companies to invest in, and track their portfolio's performance over time.
- Students will categorize the investments into high-risk, medium-risk, and low-risk, explaining why each investment falls into that category. Then, they will propose a diversified investment strategy that matches their risk tolerance.
- Each group must create a portfolio based on a risk profile (e.g., conservative, moderate, aggressive) and explain the reasoning behind their asset allocation. They will also predict how their portfolio might perform under different economic scenarios (e.g., recession, inflation, market boom).

**UNIT-III: VALUATION OF FIXED INCOME SECURITIES AND FUNDAMENTAL, TECHNICAL ANALYSIS. (15 Hrs.)**

Introduction to Debt securities, Classification, Concept of Bond, Valuation of Bond (Redeemable, Non-Redeemable and Convertible), Bond Value Theorems (Required rate of return, Coupon rate, and Bond value), Bond Duration, Concept of Fundamental Analysis. (Economy, Industry and Company), Concept of Technical Analysis. (Dow theory, Elliot wave theory).

**Exercises:**

- Divide students into two groups: one group represents bond issuers (governments or corporations) and the other group represents investors. The issuer group auctions off bonds to the investor group.
- Divide students into groups and assign each group a company's financial statement. They are tasked with calculating key financial ratios, such as:

Profitability ratios: Net profit margin, return on equity (ROE).

Liquidity ratios: Current ratio, quick ratio.

Leverage ratios: Debt-to-equity ratio.

Efficiency ratios: Inventory turnover, asset turnover.

- In small groups, students must analyze the provided charts and identify any chart patterns. They should determine if the pattern signals a potential reversal or continuation in price trends.

#### **UNIT-IV: PORTFOLIO MANAGEMENT AND EFFICIENT MARKET THEORY**

Concept of Portfolio management, Objectives, and Types, Random Walk Theory. The Efficient market hypothesis and its forms. Expected Return and Risk of Portfolio, Reduction of Portfolio risk through diversification, Portfolio Selection – Feasible set of Portfolios, Selection of optimum Portfolio (Markowitz model) – Limitations, Capital Asset Pricing Model and Arbitrage pricing theory.

##### **Exercises:**

- Have students list all the pieces currently in their portfolio, including completed projects, work in progress, and potential additions.
- Ask students to outline short-term and long-term goals for their portfolios
- Provide a structured feedback form with questions like:
  - Is the portfolio organized and easy to navigate?
  - Does the portfolio clearly showcase key skills?
  - What stands out as the strongest/weakest piece?
  - Is there any inconsistency in quality?

#### **UNIT-V: PORTFOLIO REVISION AND EVOLUTION** (15 Hrs.)

Meaning, Need and Constrains in portfolio revision, Portfolio Revision strategies, Formula plans (Constant rupee value plan, Constant Ratio plan, Dollar cost averaging)., Meaning and Need of Portfolio evolution, Evaluation perspective (Share, Treynor's and Jensen's Measure), Introduction to Mutual fund and its Types.

##### **Exercises:**

- Distribute a self – assessment worksheet that asks reflective question like.
  - Which pieces are you most proud of and why?
  - What skills have you demonstrated in your portfolio?
  - Are there any gaps in your portfolio? If so, what are they?
  - How well does your portfolio align with your goals or the assignment criteria?
- Conduct a “mock presentation” where students present their portfolios as if they were sharing them with a potential employer or evaluator.
- Have them write a short reflection on how their portfolio has evolved over time, highlighting key improvements.

##### **Reference Books:**

1. Punithavathy Pandian (2012). Security Analysis and Portfolio Management (02nd ed.). Vikas Publishing.
2. S. Kevin (2022). Security Analysis and Portfolio Management (03rd ed.). PHI Learning Private Limited.
3. V.K. Bhalla (2008). Investment Management (13th ed.). S. Chand & Company Ltd.



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**MODEL QUESTION PAPER**

**M.B.A. (Business Analytics) EXAMINATION**

**22ANDSL305: Financial Management Analytics**

**Duration: 3 hours**

**Maximum Marks: 70**

**SECTION- A**

*Answer the Following Questions*

**5×4=20 Marks**

1a) Define the importance of Financial Analytics (K1)

**OR**

1b) What is the need for spread sheet in financial analytics? (K1)

2a) Explain the concept of investment and its objectives. (K2)

**OR**

2b) Summarize the process of trading, clearing and settlement. (K2)

3a) Identify the difference between Dow and Elliot wave theory. (K3)

**OR**

3b) Choose the key different between Macaulay and Modified duration. (K3)

4a) What are the three forms of market efficiency? State their implications. (K1)

**OR**

4b) What are the steps involved in the traditional approach to portfolio construction (K1)

5a) Examine the need for Portfolio revision. (K4)

**OR**

5b) Compare the concept of constant rupee value plan and Constant Ratio plan. (K4)

**SECTION - B**

**Answer the following questions**

**5X8=40 Marks**

6a) What is Financial Analytics? Explain its types. (K1)

**OR**

6b) How to use built in functions in spreadsheet for financial analytics. (K1)

7a) Explain the process of Investment classification in detail. (K2)

**OR**

7b) Illustrate Risk, Return trade-off with measurements of risk. (K2)

8a) A four – years bond with a 7 percent coupon rate and maturity value of Rs. 1000 is currently selling at Rs. 905. What is its yield to maturity. (K3)

**OR**

8b) Do you think that knowing the current status of the economy is useful in analyzing stock market movements? If, so explain. (K3)

9.a) Two securities P and Q are considered for investment. Compute the risk and return of the portfolio assuming the two securities, whose correlation coefficient of returns is  $-0.84$ , are combined in the following proportions in the portfolio: (a) 0: 100, (b) 10: 90, (c) 20: 80, (d) 50: 50, (e) 80: 20, (f) 90: 10, (g) 100: 0. The historical risk-return of the two securities is as follows: (K3)

Security	Risk % (Std. Dev)	Return %
P	20	15
Q	30	20

**OR**

9. b) How is Markowitz Model useful in portfolio selection (K3)

10.a) A client has three portfolio choices, each with the following characteristics

	Expected Return	Volatility	Beta
Portfolio A	15	12	10
Portfolio B	18	14	11
Portfolio C	12	9	5

The efficient market portfolio has an expected return of 20% and a standard deviation of 12% and the risk-free rate of interest is 5%. Based on the Sharpe ratio for each portfolio, the client should choose. (K4)

**OR**

10.b) “Formula plans aid the investor in overcoming his emotional involvement with the timing of purchase and sale of stock”. Comment. (K4)

**SECTION-C**

**(1 x 10=10 Marks)**

**Case study (Compulsory) / Problem / Algorithm / Use Case (K5)**

11. XYZ and ABC are two mutual funds. XYZ has a sample mean of success 0.13 and fund ABC has a sample mean of success 0.18, with the riskier fund ABC having double the Beta at 2.0 as fund XYZ. The respective standard deviations are 15% of ABC and 19% of XYZ. The mean return for market index is 0.12, While the risk – free rate is 8%.

- A. Compute the Jensen index for each of the funds. What does It indicate?
- B. Compute the Treynor index for the funds. Interpret the results and compare it to the Jensen index.
- C. Compute the Sharpe index for the funds and the market.