



ANNA UNIVERSITY, CHENNAI

POSTGRADUATE CURRICULUM (NON-AUTONOMOUS AFFILIATED INSTITUTIONS)

Programme: Master of Business Administration (Business Analytics) **Regulations:** 2025

Abbreviations:

BS – Basic Science (Mathematics, Physics, Chemistry)

L – Laboratory Course

ES – Engineering Science (General (**G**), Programme Core (**PC**), Programme Elective (**PE**))

T – Theory

SD – Skill Development

LIT – Laboratory Integrated Theory

SL – Self Learning

PW – Project Work

OE – Open Elective

TCP – Total Contact Period(s)

Semester I

S. No.	Course Code	Course Title	Type	Periods per week			Total Contact Periods	Credits	Category
				L	T	P			
1.	MB25C02	Management Concepts and Organizational Behavior	T	4	0	0	4	4	ES (PC)
2.	MB25C03	Managerial Economics	T	4	0	0	4	4	ES (PC)
3.	MB25C01	Statistics for Management	T	3	1	0	4	4	ES (PC)
4.	MB25C04	Legal Aspects of Business	T	4	0	0	4	4	ES (PC)
5.	BN25C01	Managerial Decision Science	T	4	0	0	4	4	ES (PC)
6.	BN25C02	Data Management and Data Engineering	T	4	0	0	4	4	ES (PC)
7.	BN25C03	Financial Accounting and Management	T	3	1	0	4	4	ES (PC)
8.	MB25C05	Contemporary Business Communication	L	0	0	4	4	2	--
9.	BN25C04	Data Science Tools – I	L	0	0	4	4	2	--
Total Credits							36	32	

Semester II

S. No.	Course Code	Course Title	Type	Periods per week			Total Contact Periods	Credits	Category
				L	T	P			
1.		Human Resource Management	T	4	0	0	4	4	ES (PC)
2.		Marketing Management	T	4	0	0	4	4	ES (PC)
3.		Operations Management	T	3	1	0	4	4	ES (PC)
4.		Predictive Modeling for Business	T	4	0	0	4	4	ES (PC)
5.		Business Research Methods	T	3	1	0	4	4	ES (PC)
6.		Applied Operations Research	T	3	1	0	4	4	ES (PC)
7.		Entrepreneurship Development	T	3	0	0	3	3	ES (PC)
8.		Data Science Tools - II	L	0	0	4	4	2	--
9.		Social Media Content Creation	L	0	0	4	4	2	--
Total Credits							35	31	

Semester III

S. No.	Course Code	Course Title	Type	Periods per week			Total Contact Periods	Credits	Category
				L	T	P			
1.		Strategic Management	T	4	0	0	4	4	ES (PC)
2.		Artificial Intelligence and Machine Learning	T	4	0	0	4	4	ES (PC)
3.		Programme Elective I	T	3	0	0	3	3	ES (PE)
4.		Programme Elective II	T	3	0	0	3	3	ES (PE)
5.		Programme Elective III	T	3	0	0	3	3	ES (PE)
6.		Programme Elective IV	T	3	0	0	3	3	ES (PE)
7.		Programme Elective V	T	3	0	0	3	3	ES (PE)
8.		Programme Elective VI	T	3	0	0	3	3	ES (PE)
9.		R Programming	L	0	0	4	4	2	--
10.		Cloud Computing and Big Data Tools for Data Analytics	L	0	0	4	4	2	--
11.		Mini Project	L	0	0	4	4	2	--
Total Credits							38	32	

Semester – IV

S. No.	Course Code	Course Title	Type	Periods per week			Total Contact Periods	Credits	Category
				L	T	P			
1.		Project Work	PW	0	0	24	24	12	SD
Total Credits							24	12	

Total : 107 Credits

Note: Students should select the Project topic for their project work only based on the selected area from the Professional Electives (**Specialization**).

Note:

**Refer MBA - General Programme*

***Refer MBA - Artificial Intelligence and Data Science*

Programme Elective Courses – (PE)

Students can take six elective subjects

S. No.	Course Code	Course Title	Type	Periods Per Week			Total Contact Periods	Credits	Category
				L	T	P			
1.		Human Resource Analytics	T	3	0	0	3	3	ES (PE)
2.		Marketing and Social Media Web Analytics	T	3	0	0	3	3	ES (PE)
3.		Financial Analytics	T	3	0	0	3	3	ES (PE)
4.		Operation and Supply Chain Analytics	T	3	0	0	3	3	ES (PE)
5.		Time Series Analysis	T	3	0	0	3	3	ES (PE)
6.		Blockchain Technology	T	3	0	0	3	3	ES (PE)
7.		Cloud Computing Tools and Techniques	T	3	0	0	3	3	ES (PE)
8.		Enterprise Information System	T	3	0	0	3	3	ES (PE)
9.		Big data Analytics	T	3	0	0	3	3	ES (PE)
10.		Disruptive Technologies for Digital Transformation in Business	T	3	0	0	3	3	ES (PE)
11.		Multivariate Data Analysis	T	3	0	0	3	3	ES (PE)
12.		Natural Language Processing	T	3	0	0	3	3	ES (PE)

Semester I

MB25C02	Management Concepts and Organizational Behavior	L 4	T 0	P 0	C 4
Course Objectives: This course aims to provides foundational understanding of management principles and organizational behavior. It equips them to analyze individual and group dynamics, and apply management theories to real-world business problems.					
Fundamentals of Management and Evolutionary Theories: Evolution of management Thought-Classical, Behavioral and Management Science Approaches Management- meaning, levels, management as an art or science, Managerial functions and Roles, Evolution of Management Theory- Classical era- Contribution of F.W.Taylor, Henri Fayol, NeoClassical-Mayo & Hawthorne Experiments. Modern era, system & contingency approach Managerial Skills..					
Planning, Decision-Making and Organizing for Effectiveness: Planning - Steps in Planning Process - Scope and Limitations - Forecasting and types of Planning - Characteristics of a sound Plan - Management by OBJECTIVE (MBO) - PoliciesandStrategiesScopeandFormulation- DecisionMaking-Types,Techniques and Processes. Organisation Structure and Design - Authority and Responsibility Relationships - Delegation of Authority and Decentralisation -Interdepartmental Coordination - - Impact of Technology on Organisational design - Mechanistic vs Adoptive Structures - Formal and Informal Organisation. Control: meaning, function, Process and types of Control.					
Fundamentals of Control and Modern Approaches: Impact of Technology on Organisational design - Mechanistic vs Adoptive Structures - Formal and Informal Organisation. Control: meaning, function, Process and types of Control.					
Individual Behavior in Organizations: Meaning of Organizational behavior, contributing disciplines, importance of organizational behavior, Perception and Learning - Personality and Individual Differences - Motivation theories and Job Performance - Values, Attitudes and Beliefs - Communication Types-Process - Barriers - Making Communication Effective.					
Group Dynamics, Leadership and Organizational Culture: Groups and Teams: Definition, Difference between groups and teams, Stages of Group Development, Group Cohesiveness, Types of teams, Group Dynamics - Leadership - Styles - Approaches - Power and Politics - Organisational Structure - Organisational Climate and Culture, Conflict: concept, sources, Types, Stages of conflict, Management of conflict Organisational Change and Development.					
Contemporary Perspectives in Organizational Behavior: Comparative Management Styles and approaches - Japanese Management Practices Organisational Creativity and Innovation - Organizational behavior across cultures- Conditions affecting cross cultural organizational operations, Managing International Workforce, Productivity and cultural contingencies, Cross cultural communication, Management of Diversity.					
Weightage: Continuous Assessment: 40%, End Semester Examinations: 60%.					
Assessment Methodology: Written Test I & II (60%) Assignment, Presentation, Case Study, Quiz, Simulation, Online Certification, Seminar, Mini project (40%)					
References: 1. DuBrin, A. J. (2020). Essentials of management (11th ed.). Thomson South Western. 2. Certo, S. C., & Certo, T. L. (2021). Modern management: Concepts & skills (16th ed.). Pearson Education. 3. Koontz, H., & Weihrich, H. (2020). Essentials of management: An international & leadership perspective (11th ed.). Tata McGraw Hill Education. 4. Robbins, S. P. (2023). Organizational behavior (19th ed.). PHI Learning/Pearson Education.					

5. Luthans, F. (2015). Organizational behavior (14th ed.). McGraw Hill.
6. Nelson, D. L., Quick, J. C., & Khandelwal, P. (2018). ORGB – An innovative approach to learning & teaching (3rd ed.). Cengage Learning.
7. Pareek, U. (2020). Understanding organizational behavior (4th ed.). Oxford Higher Education.

E-Resources:

- ❖ NPTEL – Principles of Management and Organizational Behaviour (<https://nptel.ac.in>)

	CO description	PO Mapping	PSO1	PSO2
CO1	Demonstrate conceptual knowledge of management theories, planning, organizing, organization design and control, organizational behaviour, groups and leadership, and contemporary practices in organization behaviour.	PO5(1)	3	-
CO2	Interpret and relate to management theories, planning and organizing processes, perform organization design and execute control, organisational behavioural theories, groups, leadership, culture and contemporary practices in organization behaviour	PO1(1) PO5(3)	2	-
CO3	Apply theories and concepts of management to planning, organising, execution, design, control and individual and group behavior in organizations.	PO1(3) PO2(2)	3	-
CO4	Analyze management theories, planning, organizing, design, execution and control methodologies in organizational settings along with organizational behavioral practices.	PO1(3)	3	-
CO5	Evaluate the theories related to management and organizational behaviour to build model related to planning, organising, designs, execution, control and to group dynamics, team structures, and leadership styles for enhancing organizational performance.	PO1(3) PO2(2)	3	-
CO6	Develop contemporary practices, adapt and modify management theories, concept to all functions of management and to both individual and group behaviors to suit cross-cultural behaviour, diversity, and global workforce management.	PO3(2) PO4(3)	2	-

MB25C03	Managerial Economics	L	T	P	C
		4	0	0	4
Course Objectives: The course is designed to provide a strong foundation in economic principles and tools applicable to managerial decision-making. It introduces the concepts of scarcity, efficiency, and market mechanisms in both micro and macroeconomic settings.					
Introduction to Managerial Economics and Fundamental Concepts: The themes of economics, scarcity and efficiency, three fundamental economic problems, CREDITS: 3 8 society's capability, Production possibility frontiers (PPF), Productive efficiency Vs economic efficiency, economic growth & stability, Micro economics and Macro economics, the role of markets and government, Positive Vs negative externalities.					
Demand, Supply and Consumer Behavior: Market, Demand and Supply, Determinants, Market equilibrium, elasticity of demand and supply, consumer behavior, consumer equilibrium, Approaches to consumer behavior					
Production, Costs and Firm-Level Analysis: Production, Short-run and long-run Production Function, Returns to scale, economics Vs dis-economics of scale, Analysis of cost, Short-run and long-run cost function, Relation between Production and cost function - Production Pricing Model - Types of Pricing Model					
Market Structures and Factor Pricing: Product market–perfect and imperfect market–different market structures–Firm's equilibrium and supply, Market efficiency, Economic costs of imperfect competition, factor market–Land, Labour and capital–Demand and supply–determination of factor price–Interaction of product and factor market–General equilibrium and efficiency of competitive markets.					
Macroeconomic Performance Indicators: Macro-economic aggregates, circular flow of macroeconomic activity, National income determination, Aggregate demand and supply, Macroeconomic equilibrium, Components of aggregate demand and national income, multiplier effect, Demand side management, Fiscal policy in theory.					
Monetary Economics and Supply-Side Perspectives: Short-run and Long-run supply curve–Unemployment and its impact–Okun's law, Inflation and the impact–reasons for inflation–Demand Vs Supply factors–Inflation Vs unemployment trade off, Phillips curve –short- run and long-run – Supply side Policy and management- Money market- Demand and supply of money, money-market equilibrium and national income, the role of monetary policy.					
Weightage: Continuous Assessment: 40%, End Semester Examinations: 60%.					
Assessment Methodology: Written Test I & II (60%) Assignment, Presentation, Case Study, Quiz, Simulation, Online Certification, Seminar, Mini project (40%)					
References: 1. Samuelson, P. A., Nordhaus, W. D., Chaudhuri, S., & Sen, A. (2019). <i>Economics</i> (20th ed.). Tata McGraw Hill. 2. Boyes, W., & Melvin, M. <i>Text book of economics</i>. Biztantra. (Note: No year provided—if you can share that, I can add it.) 3. Mankiw, N. G. (2022). <i>Principles of economics</i> (8th ed., India release). Thomson Learning/Cengage India. 4. Lipsey, R., & Chrystal, A. (2015). <i>Economics</i> (13th ed.). Oxford University Press. 5. Case, K. E., & Fair, R. C. (2019). <i>Principles of economics</i> (13th global ed.). Pearson Education Asia. 6. Panneerselvam, R. (2013). <i>Engineering economics</i> (2nd ed.). PHI Learning.					

E-Resources:

- ❖ NPTEL: Managerial Economics (<https://nptel.ac.in>)
- ❖ RBI Bulletin and Monetary Policy Reports (<https://rbi.org.in>)

	CO description	PO Mapping	PSO1	PSO2
CO1	Demonstrate conceptual knowledge of managerial economics, fundamental concepts, demand and supply, production, costs, market structures, factor pricing, macroeconomic performance indicators, and monetary and fiscal policies.	PO5(3)	-	-
CO2	Interpret and relate foundational concepts, consumer behavior, production and cost functions, different market structures, macroeconomic aggregates, and the role of monetary and fiscal policies in influencing the business environment.	PO1(1) PO5(3)	-	-
CO3	Apply theories and concepts of management to planning, organising, execution, design, control and individual and group behavior in organizations.	PO1(3) PO4(2)	1	-
CO4	Analyze fundamental economic problems, consumer behavior, market structures, firm-level costs and pricing, macroeconomic indicators, and the effects of monetary and fiscal policies on business cycles.	PO1(3) PO3(1) PO4(2)	3	-
CO5	Evaluate the theories related to scarcity and efficiency, consumer demand, market structures, factor pricing, and macroeconomic policy frameworks to assess their impact on business performance in global and Indian contexts..	PO1(3)	3	-
CO6	Develop economic reasoning and apply contemporary practices to adapt managerial economic principles to address real-world business problems across various market structures, macroeconomic conditions, and policy landscapes.	PO3(2) PO4(2)	2	-

MB25C01	Statistics for Management	L	T	P	C
		3	1	0	4
Course Objectives: This course aims to provide statistical tools for data-driven decision-making, emphasizing the application of probability, hypothesis testing, regression analysis, parametric and non-parametric methods to enhance analytical skills in business scenarios.					
Probability and Probability Distributions: Basic definitions and rules for probability, conditional probability independence of events, Baye’s theorem, (Theory and Problem) and random variables, Probability distributions: Binomial, Poisson, Uniform and Normal distributions (Problem).					
Sampling and Estimation Techniques: Introduction to sampling distributions, sampling distribution of mean and proportion, application of central limit theorem (Theory and Problem), sampling techniques (Problem). Estimation: Point and Interval estimates for population parameters of large sample and small samples, determining the sample size (Problem).					
Hypothesis Testing – Parametric Methods (Problem): Hypothesis testing: one sample and two sample tests for means and proportions of large samples (z- test), one sample and two sample tests for means of small samples (t-test), F-test for two sample standard deviations. ANOVA one and two way					
Hypothesis Testing – Non-Parametric Methods (Problem): Chi-square test for single sample standard deviation. Chi-square tests for independence of attributes and goodness of fit. Sign test for paired data. Rank sum test. Kolmogorov-Smirnov, test for goodness of fit, comparing two populations. Mann, Whitney U test and Kruskal Wallis test. One sample run test.					
Correlation and Regression Analysis (Problem): Correlation, Coefficient of Determination, Rank Correlation, Regression, Estimation of Regression line, Method of Least Squares, Standard Error of estimate.					
Business Analytics Applications & Software Tools: Application of statistics - data visualization and decision making - Case studies using Excel/SPSS/R, Interpretation of output - Business scenarios - applying regression, correlation, and hypothesis tests - Introduction to data-driven storytelling - dashboarding techniques (Theory and Problem)					
Weightage: Continuous Assessment: 40%, End Semester Examinations: 60%.					
Assessment Methodology: Written Test I & II (60%) Assignment, Presentation, Case Study, Quiz, Simulation, Online Certification, Seminar, Mini project (40%)					

References:

1. Levin, R. I., Rubin, D. S., Siddiqui, M. H., & Rastogi, S. (2023). *Statistics for management* (8th ed.). Pearson Education.
2. Mann, P. S. (2020). *Introductory statistics* (10th ed.). Wiley Publications.
3. Srivastava, T. N., & Rego, S. (2017). *Statistics for management* (3rd ed.). Tata McGraw Hill.
4. Black, K. (2023). *Applied business statistics* (11th ed.). Wiley India.
5. Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., & Cochran, J. J. (2024). *Statistics for business and economics* (15th ed.). Thomson/South Western Asia.
6. Gupta, S. C., & Kapoor, V. K. (2024). *Fundamentals of applied statistics*. Sultan Chand & Sons.

E-Resources:

- ❖ NPTEL: Business Statistics and Analytics for Decision Making (<https://nptel.ac.in>)
- ❖ Statistical Tools: R (<https://cran.r-project.org>), Python (pandas, scipy), IBM SPSS, MS Excel

	CO description	PO Mapping	PSO1	PSO2
CO1	Demonstrate conceptual knowledge of probability, sampling and estimation, parametric and non-parametric hypothesis testing, correlation, regression, and their application in business analytics and software tools.	PO5(3)	-	-
CO2	Interpret and relate probability distributions, sampling techniques, the outcomes of parametric and non-parametric hypothesis tests, correlation and regression analyses, and the output from statistical software to derive meaningful business insights.	PO1(1) PO5(3)	-	2
CO3	Apply statistical concepts, including probability theory, sampling methods, various hypothesis tests, and correlation and regression models, to solve real-world business problems and make data-driven decisions.	PO1(3)	2	3
CO4	Analyze probability distributions, sampling data, the results of parametric and non-parametric tests, and regression models to evaluate business scenarios and assess the validity of statistical conclusions.	PO1(3)	3	2
CO5	Evaluate the effectiveness of different statistical tools and techniques, such as various hypothesis tests and regression models, to select the most appropriate method for a given business problem and critically appraise statistical findings..	PO1(3)	3	-
CO6	Develop data-driven solutions and strategic insights by integrating knowledge of probability, sampling, hypothesis testing, correlation, and regression, and effectively use statistical software for business analytics and data storytelling.	PO1(3) PO2(2)	3	3

MB25C04	Legal Aspects of Business	L	T	P	C
		4	0	0	4
Course Objectives: This course introduces the key Business laws and their practical applications across commercial contracts, company operations, industry regulations, taxation (including GST), and cyber laws in managing risks. It helps learners gain critical awareness of the legal framework.					
Commercial Laws and Business Contracts: The Indian Contract Act 1872: Definition of contract, essentials elements and types of a contract, Formation of a contract, performance of contracts, breach of contract and its remedies, Quasi contracts - Contract Of Agency: Nature of agency, Creation and types of agents, Authority and liability of Agent and principal: Rights and duties of principal and agents, termination of agency. The Sale of Goods Act 1930: Nature of Sales contract, Documents of title, risk of loss, Guarantees and Warranties, performance of sales contracts, conditional sales and rights of an unpaid seller - Negotiable Instruments Act 1881: Nature and requisites of negotiable instruments. Types of negotiable instruments, liability of parties, holder in due course, special rules for Cheque and drafts, discharge of negotiable instruments - The payment and settlement systems Act, 2007.					
Company Law and Competition Regulations: Company Act 1956 & 2013: Major principles, Nature and types of companies, Formation, Memorandum and Articles of Association, Prospectus, Power, duties and liabilities of Directors, winding up of companies, Corporate Governance. Competition Act 2002 - Introduction, Definitions, Enquiry into Certain Agreements and Dominant Position of Enterprise and Combinations.					
Industrial Relations and Labour Legislation: An Overview of Factories Act - Payment of Wages Act - Payment of Bonus Act - Industrial Disputes Act.					
Corporate Taxation and Goods & Services Tax (GST): Corporate Tax Planning, Corporate Taxes and Overview of Latest Developments in Indirect tax Laws relating to GST: An introduction including constitutional aspects, Levy and collection of CGST & IGST, Basic concept of time and value of supply, Input tax credit, Computation of GST Liability, Registration, Tax Invoice, Credit & Debit Notes, Electronic Way bill, Returns, Payment of taxes including Reverse Charge.					
Consumer Protection and Cyber Laws: Consumer Protection Act, Consumer rights, Procedures for Consumer grievances redressal, Types of consumer Redressal Machineries and Forums-- Cyber crimes, IT Act 2000 and 2002, Cyber Laws					
Intellectual Property Rights (IPR) in Business: Introduction of IPR Intellectual Property Laws- Introduction, Legal Aspects of Patents, Filing of Patent Applications, Rights from Patents, Infringement of Patents, Copyright and its Ownership, Infringement of Copyright, Civil Remedies for Infringement– Copy rights, Trade marks, Patent Act. Introduction, Right to Information Act, 2005.					
Weightage: Continuous Assessment: 40%, End Semester Examinations: 60%.					
Assessment Methodology: Written Test I & II (60%) Assignment, Presentation, Case Study, Quiz, Simulation, Online Certification, Seminar, Mini project (40%)					

References:

1. Kapoor, N. D. (2024). *Elements of mercantile law* (39th rev. ed.). Sultan Chand and Company.
2. Goel, P. K. (2023/24). *Business law for managers* (2nd ed.). Biztantra Publishers.
3. Pathak, A. (2022). *Legal aspects of business* (8th ed.). Tata McGraw Hill.
4. Kumar, R. (2016). *Legal aspects of business* (4th ed.). Cengage Learning.
5. Sinha, P. K., & Singhania, V. (2017/18). *Text book of indirect tax*. Taxmann Publication.
6. Taxmann. (2023). *GST manual with GST law guide & digest of landmark rulings* (12th ed.).

E-Resources:

- ❖ Ministry of Corporate Affairs: <https://www.mca.gov.in>
- ❖ GST Portal: <https://www.gst.gov.in>
- ❖ WIPO Intellectual Property Resources: <https://www.wipo.int>

	CO description	PO Mapping	PSO1	PSO2
CO1	Demonstrate conceptual knowledge of commercial laws, company law, industrial relations and labor legislation, corporate taxation (including GST), consumer protection, cyber laws, and intellectual property rights (IPR)..	PO5(3)	-	-
CO2	Interpret and relate key legal principles from contract law, company regulations, industrial acts, taxation frameworks, consumer protection laws, and intellectual property statutes to understand the legal environment of business.	PO1(1) PO5(3)	-	-
CO3	Apply legal principles and frameworks from commercial and company law, labor legislation, tax laws, and IPR to evaluate business contracts, corporate governance practices, compliance requirements, and the protection of business innovations.	PO1(3) PO4(3)	1	-
CO4	Analyze legal and regulatory frameworks, including competition law, industrial relations acts, corporate tax and GST provisions, cyber laws, and IPR, to assess their impact on business operations, risk management, and strategic decision-making.	PO1(3) PO3(1) PO4(2)	3	2
CO5	Evaluate the effectiveness of various legal provisions and frameworks, such as consumer protection and cyber laws, and IPR, to build compliance strategies, mitigate legal risks, and ensure ethical and sustainable business practices.	PO1(2) PO3(3)	3	2
CO6	Develop contemporary legal compliance and risk management strategies by integrating knowledge of commercial law, company law, industrial relations, taxation, and cyber and IPR laws to ensure effective and ethical business operations in a global context.	PO1(3) PO3(2)	3	2

BN25C01	Managerial Decision Science	L	T	P	C
		4	0	0	4
Course Objectives: This course equips managers with skills in data analytics and visualization tools, including spreadsheets, Tableau, and project management software. It focuses on using data insights to solve business problems and make informed decisions in dynamic environments.					
Foundations of Data-Driven Decision Making: Role of Data Analytics in Decision Making Business Analytics and Classification. Understanding the significance of data-driven decision-making in modern business, Influence of analytics on managerial decisions, Data analytics lifecycle, Choosing the right tool for the right task. Introduction to Spreadsheets, PowerBI, Tableau, and Project Management Tools, Setting up software tools and resources.					
Spreadsheet-Based Data Analysis: Spreadsheets for Data Analysis: Spreadsheets as fundamental data analysis tool, Basic operations, data entry, and cell references, Using formulas and functions for data manipulation. Understanding PivotTables and their role in data summarization, Creating PivotTables and Pivot Charts, Customizing PivotTables for effective analysis. Using advanced Spreadsheet functions (e.g., VLOOKUP, IF, INDEX-MATCH).					
Data Visualization Principles and Practices: Principles of effective data visualization. Choosing the right chart type for different data scenarios. Customizing charts for clarity. Creating Advanced Charts in Spreadsheets, Building advanced charts (e.g., trendlines, combo charts, and waterfall charts). Case studies and exercises applying advanced functions.					
Interactive Dashboards and Tableau Basics: Concepts of dashboards - real-time reporting - Introduction to Tableau – Connecting to data sources – Data transformation and joins - Creating dashboards with filters, parameters, and interactivity - Advanced visualizations: Geo maps, heatmaps, KPI tiles, forecasting in Tableau					
Storytelling with Data and Collaboration: Data storytelling: Frameworks and techniques – Narrative-driven dashboards - Building effective presentations using charts and visuals - Sharing dashboards and collaborating across teams using cloud platforms - Introduction to Power BI - comparison with Tableau					
Introduction to Project Management Tools and Integration: Basics of Project Management, Using popular Tools to understand Project Interface and Basics, Task Scheduling and Dependencies, Resource Allocation and Tracking, Gantt Charts and Reporting, Tracking project progress and updates.					
Weightage: Continuous Assessment: 40%, End Semester Examinations: 60%.					
Assessment Methodology: Written Test I & II (60%) Assignment, Presentation, Case Study, Quiz, Simulation, Online Certification, Seminar, Mini project (40%)					
References: 1. Dinesh Kumar, U. (2020). Business analytics: The science of data-driven decision making. Wiley India. 2. Evans, J. R. (2012). Business analytics: Methods, models and decisions. Pearson Education. 3. Winston, W. (2017). Microsoft Excel 2016 data analysis and business modelling. Microsoft Press. 4. Maheswari, U., & Sujatha. (2021). Introduction to data science: Practical approach with R and					

Python. Wiley.

5. Milligan, J. N. (2022). Learning Tableau. Packt Publishing.

6. Deckler, G., Powell, B., & Gordon, L. (2022). Mastering Microsoft Power BI. Packt Publishing Ltd.

E-Resources:

- ❖ <https://powerbi.microsoft.com> – Microsoft Power BI resources
- ❖ <https://support.microsoft.com/excel> – Excel documentation and training
- ❖ <https://nptel.ac.in> – NPTEL courses on Business Analytics, Data Visualization

	CO description	PO Mapping	PSO1	PSO2
CO1	Demonstrate conceptual knowledge of data-driven decision-making, spreadsheet-based data analysis, data visualization principles, interactive dashboards using Tableau, data storytelling, and the use of project management tools for business problem-solving.	PO1(1) PO5(3)	1	1
CO2	Interpret and relate to the foundations of data-driven decision-making, advanced spreadsheet functions, data visualization principles, interactive dashboard creation, data storytelling techniques, and project management tools for planning and tracking.	PO1(2) PO5(3)	2	2
CO3	Apply data-driven decision-making concepts to practical problems using spreadsheet-based analysis, data visualization techniques, interactive dashboards with Tableau, data storytelling frameworks, and project management tools for execution and control.	PO1(3) PO5(1)	3	3
CO4	Analyze the role of data analytics in decision-making, complex spreadsheet functions, different data visualization scenarios, data transformation and insights from interactive dashboards, narrative-driven data storytelling, and the application of project management tools in a business context.	PO1(3) PO2(2)	3	3
CO5	Evaluate the significance of data-driven decision-making, the effectiveness of spreadsheet-based analysis, the clarity and impact of data visualizations, the insights derived from interactive dashboards, the power of data storytelling, and the utility of project management tools for enhancing organizational performance.	PO1(3) PO2(2) PO4(1)	3	3
CO6	Develop contemporary practices in data-driven decision-making, adapt spreadsheet and visualization techniques, modify interactive dashboards in Tableau, and create data storytelling presentations and project management plans to suit various business scenarios.	PO2(3) PO4(2)	3	3

BN25C02	Data Management and Data Engineering	L	T	P	C
		4	0	0	4
Course Objectives: This course establishes foundational and practical knowledge of data management systems, big data technologies, and cloud computing. It focuses on applying these concepts to design, implement, and manage data pipelines for real-world business intelligence and analytics applications.					
Foundations of Data Management Systems: Database System Concepts – Database Architecture - Data model – Data Warehouse – Data Marts – Data Lake - Batch, Stream, and Micro-batch Processing - Concepts of ETL – SQL – The CAP Theorem - NOSQL Databases					
Big Data Ecosystem and Use Cases: What is Big Data? - Big Data Technologies Based on MapReduce and Hadoop - Hadoop Distributed File System (HDFS) – YARN– Case Study- Preventing Private Information Inference Attacks on Social Networks-Grand Challenge: Applying Regulatory Science and Big Data to Improve Innovation.					
Cloud Platforms and AWS Ecosystem: Cloud Computing – Overview of Google Cloud Platform and Microsoft Azure – Detailed study of AWS Ecosystem - AWS Analytics Services - AWS Data Movement Services - AWS Predictive Analytics & Machine Learning Services – Amazon Redshift – Amazon EMR – Amazon MSK – Amazon Kinesis - AWS Serverless - AWS Lambda					
Data Engineering and Governance: Key Data Mining Algorithms - Data Governance Tools – Data Stewardship, Data Quality, Master Data Management (MDM) - Data Security – Statistical Database Security – Flow Control - Encryption and Public Key Infrastructures..					
R Programming for Data Analytics: Overview, Programming structures: Control statements - Operators -Functions -Environment and scope issues - Recursion -Replacement functions, R data structures: Vectors -Matrices and arrays - Lists -Data frames - Classes, Input/output, String manipulations..					
Integration and Application in Business Contexts: Integration of R and SQL - data querying and reporting - Data pipelines and automation in business analytics - Trends in data engineering: DataOps, containerization, orchestration - Industry case studies in financial, healthcare, and retail analytics					
Weightage: Continuous Assessment: 40%, End Semester Examinations: 60%.					
Assessment Methodology: Written Test I & II (60%) Assignment, Presentation, Case Study, Quiz, Simulation, Online Certification, Seminar, Mini project (40%)					
References: 1. Berthold, M., & Hand, D. J. (2007). Intelligent data analysis. Springer. 2. Rajaraman, A., & Ullman, J. D. (2020). Mining of massive datasets. Cambridge University Press. 3. Wickham, H., & Grolemond, G. (2016). R for data science: Import, tidy, transform, visualize, and model data. O'Reilly Media, Inc. 4. Laudon, K. C., & Laudon, J. P. (2025). Management information systems: Managing the digital firm. Pearson. 5. Panneerselvam, R. (2018). Database management systems. PHI Learning 6. Matloff, N. (2011). The art of R programming: A tour of statistical software design. No Starch Press.					

E-Resources:

- ❖ AWS Training and Certification: <https://aws.amazon.com/training>
- ❖ R Project for Statistical Computing: <https://cran.r-project.org>
- ❖ NPTEL: Data Science and Big Data Analytics (IIT Madras / IIT Kharagpur)
- ❖ Apache Hadoop Documentation: <https://hadoop.apache.org>

	CO description	PO Mapping	PSO1	PSO2
CO1	Demonstrate conceptual knowledge of foundational data management systems, big data ecosystems, cloud platforms (AWS), data engineering, governance practices, R programming for analytics, and the integration of these tools in a business context.	PO1(3) PO5(3)	2	2
CO2	Interpret and relate to database system architectures, big data technologies like Hadoop, the AWS ecosystem, data governance standards, R programming structures, and the application of data pipelines and automation in business analytics.	PO5(3)	2	2
CO3	Apply theories and concepts of data management, big data, AWS services, data governance, R programming, and data pipeline integration to solve real-world business analytics problems.	PO1(3) PO5(3)	3	3
CO4	Analyze data management systems, big data technologies and use cases, cloud platform services, data engineering and governance methodologies, R programming for data manipulation, and integrated data solutions in various business settings.	PO1(3)	3	3
CO5	Evaluate the theories and practices related to data management systems, big data technologies, cloud platforms, data governance, R programming, and data pipeline orchestration to build models for enhancing business intelligence.	PO1(3) PO4(2)	2	2
CO6	Develop contemporary practices, adapt and modify data management, big data, cloud computing, data governance, R programming, and integration concepts to suit modern data engineering trends and real-world business applications.	PO3(2)	2	2

BN25C03	Financial Accounting and Management	L 3	T 1	P 0	C 4
Course Objectives: To cultivate an understanding of financial accounting and management principles, enabling the application of analytical and strategic skills for informed financial decisions and efficient resource management in a business context.					
Introduction to Financial Accounting and Reporting: Introduction to Financial, Cost and Management Accounting–Generally accepted accounting principles– Double Entry System– Preparation of Journal, Ledger and Trial Balance, Preparation of Final Accounts: Trading, Profit and Loss Account and Balance Sheet (Problem) - Reading the financial statements.					
Financial Statement Analysis and Modeling: Financial ratio analysis, Interpretation of ratio for financial decisions – Dupont Ratios – comparative statements - common size statements. Cash flow (as per Accounting Standard 3) and Funds flow statement analysis (Problem) –Trend Analysis – Financial modeling					
Financing and Dividend Decisions: Introduction of Finance – nature and scope of finance functions – Indian Capital Market – New issues of market – Secondary market – sources of long-term finance Leverages - Operating and Financial leverage (Problem) – measurement of leverages – degree of Operating & Financial leverage – Combined leverage, EBIT – EPS Analysis- Indifference point - Determinants of Capital structure. Dividend decision – Issues in dividend decisions, Importance – Factors determining dividend policy – Types of dividend policies – forms of dividend					
Investment Decision-Making: Capital Budgeting: Principles and techniques - Nature of capital budgeting- Identifying relevant cash flows - Evaluation Techniques: Payback, Accounting rate of return, Net Present Value, Internal Rate of Return, Profitability Index (Problem) - Comparison of DCF techniques - Concept and measurement of cost of capital - Specific cost and overall cost of capital.					
Working Capital Management: Principles of working capital: Concepts, Needs, Determinants, issues and estimation of working capital (Problem) - Receivables Management – Inventory management – Cash management – Working capital finance: Commercial paper, Company deposit, Trade credit, Bank finance.					
Modern Financial Tools and Business Applications: Spreadsheet-based financial calculations and modeling - Real-time decision-making using finance dashboards - Digital transformation in financial accounting (ERP systems, Tally, Zoho Books) - Industry use-cases in capital budgeting, credit risk, and cash flow planning					
References: 1. Narayanaswamy, R. (2022). Financial accounting (7th ed.). PHI. 2. Khan, M. Y., & Jain, P. K. (2021). Management accounting (8th ed.). Tata McGraw Hill. 3. Singhvi, N. M., & Bodhanwala, R. J. (2018). Management accounting: Text and cases (3rd ed.). PHI. 4. Pandey, M. (2021). Financial management (12th ed.). Vikas Publishing House Pvt. Ltd. 5. Bhattacharya, A. K. (2012). Introduction to financial statement analysis (latest ed.). Elsevier/PHI.					

6. Reddy, T. S., & Murthy, A. (2024). Financial accounting (2024 ed.). Margham Publications.

E-Resources:

- ❖ <https://nptel.ac.in/courses/110105135> – NPTEL: Financial Accounting
- ❖ <https://www.investopedia.com> – Accounting & Financial Tools
- ❖ <https://corporatefinanceinstitute.com> – Financial Modeling Tutorials
- ❖ YouTube: Prasanna Chandra's Lectures on Finance
- ❖ Tally Education Portal – <https://www.tallyeducation.com>

	CO description	PO Mapping	PSO1	PSO2
CO1	Demonstrate conceptual knowledge of financial accounting and reporting, financial statement analysis, financing and dividend decisions, investment decision-making techniques, working capital management, and modern financial tools and their applications in business.	PO5(3)	2	-
CO2	Interpret and relate to accounting principles, financial modeling and ratio analysis, financing and dividend policies, capital budgeting techniques, working capital concepts, and the use of digital tools and dashboards for real-time reporting.	PO5(3)	2	-
CO3	Apply the theories and concepts of financial accounting to prepare and analyze financial statements, make financing and dividend decisions, evaluate investment proposals using capital budgeting techniques, manage working capital efficiently, and utilize spreadsheet-based financial modeling for business applications.	PO1(3) PO5(3)	3	1
CO4	Analyze the methodologies of financial accounting, financial statement modeling, financing and dividend decisions, capital budgeting techniques, working capital management, and the use of modern financial tools in various organizational settings.	PO1(3) PO4(2)	3	-
CO5	Evaluate the theories and practices related to financial accounting and reporting, financial statement analysis, financing and dividend decisions, investment decision-making, working capital management, and modern financial tools to build models for enhancing organizational performance.	PO1(3) PO3(2) PO4(2)	3	-
CO6	Develop contemporary practices, adapt and modify the concepts of financial accounting and management to all finance functions, including financial statement preparation, ratio analysis, financing decisions, capital budgeting, working capital management, and the use of digital tools and dashboards to suit cross-functional business scenarios.	PO1(3) PO4(2)	3	3

MB25C05	Contemporary Business Communication	L	T	P	C
		0	0	4	2
Course Objectives: This course aims to equip essential business communication skills required for modern managerial roles. It emphasizes both oral and written communication for various Business contexts such as interviews, meetings, presentations, professional correspondence..					
Communication Fundamentals and Managerial Speech Practice: Introduction to Business Communication: Principles of effective communication, Target group profile, Barriers of Communication, Reading Skills, Listening, Feedback., Principles of Nonverbal Communication Professional dressing and body language. Role Playing, Debates and Quiz. Types of managerial speeches - Presentations and Extempore, speech of introduction, speech of thanks, occasional speech, theme speech., Group communication: Meetings, group discussions. , Other Aspects of Communication: Cross Cultural Dimensions of Business Communication Technology and Communication, Ethical & Legal Issues in Business Communication.					
Business Writing and Corporate Communication Tools: Business letters, Routine letters, Bad news and persuasion letters, sales letters, collection letters, Maintaining a Diary, Resume/CV, job application letters, proposals. Internal communication through, notices, circulars, memos, agenda and minutes, reports. Case Studies. Exercises on Corporate Writing, Executive Summary of Documents, Creative Writing, Poster Making, Framing Advertisements, Slogans, Captions, Preparing Press Release and Press Notes					
Presentation and Public Speaking Skills: Principles of Effective Presentations, Principles governing the use of audiovisual media.					
Interviewing and Job Preparedness: Mastering the art of giving interviews in, selection or placement interviews, discipline interviews, appraisal interviews, exit interviews, web /video conferencing, tele-meeting.					
Business Networking and Personal Branding: Business networking techniques – Ice-breakers, small talk, digital etiquette – Conversational intelligence – Professional dining etiquette – Social media presence and grooming – Self-confidence and image management – Real-life simulations and feedback.					
Report Writing and Analytical Communication: Objectives of report, types of report, Report Planning, Types of Reports, Developing an outline, Nature of Headings, Ordering of Points, Logical Sequencing, Graphs, Charts, Executive Summary, List of Illustration, Report Writing.					
Note: The emphasis of the entire subject should be on practical aspects.					
Practical: This module introduces both written and spoken communication skills to students to build their confidence in delivering clear and logical messages to their audience. They will develop written communication skills through crafting Business messages such as Business letters, emails, and meeting minutes. In addition, students will work through presentations and simulated meetings to refine their spoken communication skills, discussion techniques and people skills.					
Practical: This module builds on the foundation of Business Communication 1 and creates opportunities for students to strengthen their oral and written communication. Students will be required to enhance their presentation skills through impromptu speeches. Students will also learn how to prepare a formal Business report. Job hunting and employment skills will be introduced to prepare students for a positive start to their careers. Students will be taught to write application letters and resumes. Additionally, students will learn job interview techniques through role-plays and simulations					
Practical: This practical module aims to help students be persuasive in the Business world. Students will learn listening and data gathering skills to better understand their target audience's needs and requirements and persuasive skills to convince the audience to accept a new					

policy/suggestion/product through role-playing a boardroom presentation. Students will also be taught Business networking skills including conversation techniques, dining etiquette and personal branding through role-plays and simulations.

References:

1. Pal, R., & Korlahalli, J. S. (2011). *Essentials of business communication* (13th rev. ed.). Sultan Chand.
2. Raman, M., & Singh, P. (2012). *Business communication* (2nd ed.). Oxford.
3. Sharma, R. C., & Mohan, K. (2020). *Business correspondence & report writing* (6th ed.). Tata McGraw Hill.
4. Goodale, M. *Professional presentations: Developing communication skills*. Cambridge University Press.
(Note: Year not provided; please share if you have it.)
5. Adair, J. *Effective communication*. Pan Macmillan.
(Note: Year not provided; please share if you have it.)
6. Thill, J. V., & Bovee, G. L. (2023/2024). *Excellence in business communication* (14th ed.). McGraw Hill.

E-Resources:

- ❖ NPTEL – Soft Skills https://onlinecourses.nptel.ac.in/noc21_hs76
- ❖ MindTools – Communication Skills Portal www.mindtools.com/cawh8bu/communication-skills
- ❖ TEDx – Effective Speaking & Personal Branding <https://www.youtube.com>

	CO description	PO Mapping	PSO1	PSO2
CO1	Demonstrate effective verbal and non-verbal communication skills, including public speaking, written correspondence, interviewing, professional networking, and report writing, in various business contexts.	PO2(3) PO5(3)	-	-
CO2	Interpret and relate the principles of effective communication, business writing, presentation techniques, job preparedness, and professional networking to develop clear and persuasive communication strategies.	PO2(3) PO5(3)	-	-
CO3	Apply communication fundamentals, business writing techniques, public speaking skills, interviewing strategies, networking etiquette, and report writing principles to solve real-world business communication challenges.	PO1(1) PO2(3) PO4(2)	-	-
CO4	Analyze business communication scenarios, including managerial speeches, written correspondence, interviews, and networking interactions, to adapt communication styles for different audiences and purposes.	PO2(3)	2	2
CO5	Evaluate the effectiveness of various communication methods, including presentations, professional correspondence, and reports, to build a personal brand, foster professional relationships, and enhance business communication.	PO2(3) PO3(2) PO5(3)	-	-
CO6	Develop a comprehensive communication plan and strategy by integrating knowledge of communication fundamentals, written correspondence, public speaking, job preparedness, networking, and analytical reporting to effectively lead and manage in a modern business environment.	PO2(3) PO3(2)	3	2

BN25C04	Data Science Tools – I	L	T	P	C
		0	0	4	2
Course Objectives: This course aims to build practical competency in data handling, statistical analysis, and predictive modeling using industry-standard tools. The objective is to apply these skills through hands-on practice with spreadsheets, Power BI, Tableau, and Python, enabling the development of analytical dashboards and models to support business decision-making.					
Spreadsheet-Based Data Manipulation and Analytics: Sorting and filtering data, Formulas and functions for data manipulation, PivotTables and Pivot Charts for data summarization.					
Practical Exercise 1: Sales Data Analysis and Reporting: Use a provided dataset of sales transactions. Apply filters to identify sales from a specific region and for a particular product category. Use formulas like SUM, AVERAGE, and COUNTIF to calculate key metrics such as total revenue, average order value, and the number of orders per customer segment. Create a PivotTable to summarize total sales by Product and Region, and then generate a Pivot Chart to visualize this summary.					
Practical Exercise 2: Human Resources (HR) Data Management: Given an employee dataset with columns like Employee ID, Department, Hire Date, and Salary, sort the data by Salary in descending order to find the highest earners. Use a custom filter to display employees hired within the last two years. Create a PivotTable to show the average salary for each department and job title. Use a calculated field within the PivotTable to compute the total annual cost per department.					
Statistical Analysis and Modeling in Excel: Descriptive Statistics - Measures of central tendency and variability, Frequency distributions and histograms, Summary statistics in Excel. Inferential Statistics - Analysis of variance (ANOVA). Chi square test - Regression Analysis – Understanding regression analysis, Simple linear regression, Multiple linear regression.					
Practical Exercise 1: Marketing Campaign Effectiveness: Use a dataset with Advertising Spend and Sales Revenue for several months. Generate descriptive statistics for both variables using the Data Analysis Toolpak. Create a histogram for Sales Revenue to visualize its distribution. Perform a simple linear regression to determine the relationship between Advertising Spend and Sales Revenue. Interpret the regression output, focusing on the R-squared value and the p-value of the independent variable.					
Practical Exercise 2: Quality Control and Process Improvement: Given data on product defects from two different manufacturing lines, use an ANOVA test to determine if there is a statistically significant difference in the average number of defects between the two lines. For a separate dataset of product classifications (e.g., Good, Defective) across different factories, use a Chi-square test to see if there is a relationship between Factory and Product Classification.					
Data Visualization with Tableau: Getting Started with Tableau, Dimensions vs. Measures, Discrete vs Continuous, Application of Discrete and Continuous Fields, Aggregation in Tableau. Working with Metadata, Filters in Tableau, Applying Analytics to the worksheet, Dashboard in Tableau, Modifications to Data Connections, Edit Data Source, Unions, Joins Data blending.					
Practical Exercise 1: Visualizing Financial Performance: Connect to a financial dataset containing sales, profit, and expense information. Create a line chart showing the trend of Sales over time. Build a packed bubble chart to visualize Profit by Product Category. Combine these and other relevant visualizations into a dashboard. Ensure the dashboard is interactive, allowing users to filter all charts by a specific Region.					
Practical Exercise 2: HR Analytics Dashboard: Use an HR dataset with information on Department, Job Role, Salary, and Performance Score. Create a bar chart showing the average Salary by Department. Use a scatter plot to analyze the relationship between Years of Service and Performance Score. Build a dashboard that includes these visuals along with filters for Department and Job Role.					

Power BI for Interactive Visualization and Reporting: Introduction to PowerBI – Working with data – Importing from flat files, excel files, other Sources, Data Sources in Power BI Desktop, Loading Data in Power BI Desktop, Views in Power BI Desktop, Query Editor in Power BI, Transform, Clean, Shape, and Model Data Manage Data Relationship, editing a Relationship, Cross Filter Direction, Saving Workfile Measures. Data Analysis Expressions – Introduction to Power Query – Introduction to Power View – Power View visualizations – Power View filtering options – Introduction to Power Map – Preparing geospatial data – Publish from Power BI desktop – Publish Dashboard to Web.

Practical Exercise 1: Supply Chain and Logistics Report: Import a sales CSV file and a product Excel file into Power BI Desktop. Use the Power Query Editor to clean the data, such as removing columns or splitting text. Create a relationship between the two tables based on a common Product ID. Build a report with visualizations that include a map showing total sales by country, a bar chart of sales by product, and a filter for order date.

Practical Exercise 2: Marketing and Customer Insights Dashboard: Import a dataset that contains customer data, including Customer ID, Purchase Frequency, and Purchase Amount. Create DAX measures to calculate the average purchase amount per customer. Build a dashboard that includes a donut chart showing the distribution of customer segments, a card for the total number of customers, and a bar chart showing purchase amount by customer segment. Publish the final dashboard to the Power BI Service.

Introduction to Business Analytics Using Python: Overview of business analytics and its applications. Introduction to Python for data analysis. Setting up Python environment (Anaconda, Jupyter Notebooks). Introduction to python variable declaration, Keywords, Indents in Python, Python input/output operations, Python's Built-in Data types, Conditional Statements & Loop Conditional Statements, Function in python, File Processing. Modules - Concept of modularization, Importance of modules in python, Importing modules, Built in modules (ex: Numpy)

Practical Exercise 1: Data Exploration with Python: In a Jupyter Notebook, write a Python script to declare variables of different types (e.g., a string for Product Name, a float for Unit Price, and a list of Regions). Read a provided CSV file into a Pandas DataFrame. Use basic DataFrame functions like head(), describe(), and shape to understand the data. Filter the DataFrame to select rows where a specific condition is met, such as sales greater than a certain value.

Practical Exercise 2: Python Functions and Control Flow: Write a Python function that takes a list of numbers (e.g., Sales Amounts) and returns the sum. Create another function that uses conditional statements (if-elif-else) to classify a customer as High Value, Medium Value, or Low Value based on their total spending. Use a for loop to iterate through a list of departments and print a message for each.

Integration, Application & Capstone Mini Project: End-to-end business case: data import → clean → analyze → visualize - Cross-platform case implementation (e.g., Excel + Power BI or Python + Tableau) - Designing analytical dashboards and models for decision support - Capstone mini-project with real-world data from marketing, finance, or HR analytics.

Practical Exercise 1: Cross-Platform Business Case: Start with a messy dataset in Python (Jupyter Notebooks). Use the Pandas library to handle missing values, correct data types, and remove duplicates. Save the cleaned data to a new CSV file. Connect to this cleaned CSV file in Tableau and build a dynamic, interactive dashboard to present key insights from the data, such as sales performance and regional trends.

Practical Exercise 2: Comprehensive Capstone Project: Given a real-world dataset (e.g., from marketing or HR), define a business problem to solve. Use Python to import and prepare the data. Conduct a statistical analysis in Excel to test a hypothesis. Build a comprehensive, interactive dashboard in Power BI that visualizes the results. Prepare a short report summarizing the findings and providing actionable recommendations.

References:

1. Motwani, B. (2022). Data analysis using Python (6th ed. or later). Wiley.
2. Hyman, J. A. (2025, December). Microsoft Power BI for dummies (2nd ed.). Wiley.
3. Manohar, H. L. (2017). Data analysis and business modelling using Excel. PHI.
4. Wickham, H., & Grolemund, G. (2016). R for data science. O'Reilly.
5. Stevenson, W. J., & Ozgur, C. (2009). Introduction to management science with spreadsheet. Tata McGraw-Hill.

E-Resources:

- ❖ <https://powerbi.microsoft.com> – Microsoft Power BI training
- ❖ <https://realpython.com> – Python tutorials
- ❖ <https://www.kaggle.com> Practice datasets and notebooks

	CO description	PO Mapping	PSO1	PSO2
CO1	Demonstrate conceptual knowledge of spreadsheet-based data manipulation, statistical analysis in Excel, data visualization with Tableau, interactive reporting with Power BI, Python programming for data analysis, and the integration of these tools for a capstone project.		-	-
CO2	Interpret and relate to data manipulation and analytics in spreadsheets, statistical and regression models, data visualization principles in Tableau, interactive dashboards in Power BI, Python data types and structures, and the application of these tools for end-to-end business cases.	PO2(1) PO5(3)	-	-
CO3	Apply the theories and concepts of spreadsheet analytics, statistical modeling, data visualization in Tableau, interactive reporting in Power BI, Python programming, and cross-platform integration to solve real-world business analytics problems.	PO5(3)	-	-
CO4	Analyze methodologies for data manipulation and summarization in spreadsheets, statistical and regression analysis, data visualization in Tableau, data transformation and modeling in Power BI, Python for data analysis, and integrated analytical dashboards for decision support.	PO2(3) PO4(2) PO5(3)	2	2
CO5	Evaluate the theories and practices related to spreadsheet analytics, statistical and regression modeling, interactive dashboards in Tableau and Power BI, Python programming, and cross-platform integration to build models for enhancing business decision-making.	PO2(2) PO4(2) PO5(3)	-	-
CO6	Develop contemporary practices, adapt and modify data manipulation techniques, statistical models, visualizations, interactive reports, Python scripts, and tool integration concepts to suit various business analytics problems and capstone projects.	PO2(2) PO4(2) PO5(3)	3	2