



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Master of Business Administration

Level: PG

Branch: Fintech

Course / Subject Code: MB01098051

Course / Subject Name : Fundamentals of Data Analysis

W. e. f. Academic Year	2025-26
Semester	1
Category of the Course:	Core Course (CC)

Prerequisite:	Not required
Rationale:	This course is designed to provide foundational knowledge of data analysis with a strong grounding in Management Information Systems (MIS). The course equips future professionals with the analytical mindset and technical skills necessary to make informed, data-backed decisions. The integration of MIS concepts with practical analytics fosters a holistic understanding of how data supports business functions and strategic objectives.

Course Outcomes:

No.	Course Outcomes	RBT Level
01	Understand the fundamentals of Management Information Systems (MIS) and their strategic role in supporting business operations and decision-making.	Remember, Understand
02	Identify various types of business data, evaluate their quality and relevance, and perform basic data pre-processing tasks to prepare data for analysis.	Understand, Apply, Analyse
03	Apply appropriate data visualization techniques to interpret business data and create meaningful insights.	Understand, Apply, Analyse
04	Develop interactive dashboards using Power BI and present data-driven business recommendations for functional decision-making.	Apply, Analyse

Teaching and Examination Scheme:

(in Total Hours (TH) per semester)					Total Credits =TH/30	Assessment Pattern & marks					Total Marks
L	T	PR	PBL	TH	C	Theory		Tutorial / Practical			
						ESE (E)	PA (M)	PA (I)	PBL (I)	ESE (V)	
45	0	30	45	120	4	70	30	20	30	0	150



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* Problem Based Learning (PBL) aims to accommodate learning beyond syllabus as per clause 9.4 of NBA manual.

Course Content:

Unit No.	Content	No. of Hours	Marks
1	Introduction to Data Analysis and MIS Introduction to MIS: Components, roles, strategic importance. Types of MIS: TPS, MIS, DSS, ESS, BI. Organizations and Information Systems: How IS supports business functions. Information systems and business processes. Data vs. Information vs. Knowledge: Hierarchies and flow. Business value of data systems. MIS in Data vs. Information vs. Knowledge. Business Intelligence (BI) vs. MIS vs. Data Analytics	10	14
2	Data Resources and Pre-processing Techniques Types of data: Structured, semi-structured, and unstructured. Internal vs. external data sources. Data lifecycle in MIS. Introduction to databases and DBMS. Data quality: Integrity, consistency, completeness. Basics of data cleaning and preparation.	12	21
3	Data Visualization for Management Choosing the right charts for business problems: Bar, Column, Line, Pie, Cards, Maps, KPIs, Matrix. Drill-down and interactive filtering for deeper analysis. Creating a visual story: From data to insight. Do's and don'ts of dashboard design. Dashboard basics using Excel/Google Sheets. Interpreting business trends using visual tools	12	21
4	Business Reporting and Dashboarding Using Power BI Introduction to Power BI for Business Users Data Import and Cleaning with Power Query Dashboard Creation and Visualization Managerial Interpretation and Decision Making	6	14



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5	Develop interactive dashboards using Power BI and present data-driven business recommendations for functional decision-making Create a visual story with insights Compare BI Dashboard vs Excel dashboard Customer Segmentation Dashboard Dashboard Design Critique Real-World Case Study Dashboard	30+45	PA(I) + PBL* (I) assessment (50)
Total		120	

*Progressive Assessment (Internal)

Suggested Specification Table For Question Paper Design:

Distribution of Theory Marks (in %)					
R Level	U Level	A Level	N Level	E Level	C Level
7	14	14	14	14	7

*RM: Remember, UN: Understand, AP: Apply, AN: Analyze, EL: Evaluate, CR: Create (as per revised Blooms Taxonomy)

Suggested Learning Resources:

S. No.	Title of Book	Author	Publication with place, year and ISBN
1	Management Information Systems: Managing the Digital Firm	Kenneth C. Laudon & Jane P. Laudon	Pearson Education, New Delhi, 2021 ISBN: 9789353439642
2	<i>Fundamentals of Database Systems</i>	Ramez Elmasri & Shamkant B. Navathe	Pearson Education, New Delhi, 2015 (7th Edition) ISBN: 9789332582705
3	<i>torytelling with Data: A Data Visualization Guide for Business Professionals</i>	Cole Nussbaumer Knaflic	Wiley, Hoboken, 2015 ISBN: 9781119002253
4	Data Visualization: A Practical Introduction	Kieran Healy	Princeton University Press, Princeton, 2018 ISBN: 9780691181622
5	<i>Analyzing Data with Power BI and Power Pivot for Excel</i>	Alberto Ferrari & Marco Russo	Publication: Microsoft Press, Redmond, 2017 ISBN: 9781509302765
6	<i>Mastering Microsoft Power BI</i>	B. J. Ramesh	BPB Publications, New Delhi, 2021 ISBN: 9789391392648



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List of Journals / Periodicals / Magazines / Newspapers / Web resources, etc.

MIS Quarterly (MISQ)

Journal of Management Information Systems (JMIS)

Information Systems Journal (ISJ)

International Journal of Information Management (IJIM)

CO- PO Mapping:

Semester 1	Fundamentals of Data Analysis				
	POs				
Course Outcomes	PO1	PO2	PO3	PO4	PO5
CO1	3	2	1	3	2
CO2	3	3	2	2	2
CO3	2	3	1	3	1
CO4	2	2	1	3	1

Legend: '3' for high, '2' for medium, '1' for low and '-' for no correlation of each CO with PO.