B. J. VANIJYA MAHAVIDYALAYA
(Autonomous)
(Grant-in-Aid)
(Affiliated to Sardar Patel University)
Vallabh Vidyanagar- 388 120, Dist. Anand, Gujarat, India
Accredited with CGPA of 2.78 on four-point scale at B++ Grade by NAAC
Syllabus as per the NEP 2020 with effect from June – 2024
Bachelor of Commerce (B. Com.)
Semester – I

Course Code	UB01MDCOM01	Title of the Course	Business Mathematics & Statistics-I
Total Credits of the Course	04	Hours per week	04

Course Objectives:	1) This course aims to furnish the students with the Mathematical and Statistical foundation required for business management and Commerce and to know the function of Mathematics and Statistics in the Commerce and Management field.
	2) To provide college students with reinforcement of Mathematical and Statistical computations.
	3) To develop the ability to communicate Mathematical and Statistical ideas and solutions clearly and effectively to others.
	4) To make informed business decisions and effectively communicate Mathematical and Statistical concepts in a business and commerce environment.
	5) To enhance their ability to analyze and interpret financial data.
	6) To develop Mathematical and Statistical skills and their application in various business contexts

Course Content		
Unit No.	Description	Weightage (%)
1.	**Set Theory and Determinants:** • Sets, Subsets, Equality of two sets, null set, universal set, power set, complements of a set, union and intersection of sets, difference of two sets. • Venn Diagram (Concept only), Laws of algebra of sets,	25%

	De 'Morgan laws and Cartesian Product of two sets. • Determinants: Meaning, Determinants and their basic properties of determinant (without Proof, without examples), Cramer's Method (For two variables)	
2.	**Matrix:** • Type of matrices: Square, Null, Identity, Transpose of Matrices, Symmetric, Skew symmetric, Singular, Non Singular, Inverse, Adjoin of matrix. • Matrices - scalar multiplication, Addition, Subtraction, Multiplication. Solution of a system of two linear equations using matrix.	**25%**
3.	**Univariate Data Analysis I: Measures of Central Tendency:** • Meaning of Measure of central Tendency, Characteristics of Ideal measures of central Tendency, Definition and calculation of mean, Median Mode Quartiles Deciles and Percentiles, Combined Mean	**25 %**
4.	**Univariate Data Analysis II : Measures of Dispersions:** • Meaning of Measure of dispersion, Characteristics of Ideal measure of dispersion, Definition and calculation of Range, Quartiles Deviation, Standard Deviation, Variance, Coefficient of Variance (CV), Relative measures of dispersion.	**25 %**

Teaching-Learning Methodology	The course would be taught /learnt through ICT (e.g. Power Point Presentation, Audio-Visual Presentation), Lectures, Group Discussions, Quizzes, Assignments, Case Study and Browsing E- Resources.

Evaluation Pattern		
Sr. No.	**Details of the Evaluation**	**Weightage**
1.	Internal Written / MCQ (As per CBCS R.6.8.3)	**30%**
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quiz, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	**20%**
3.	Final Examination	**50%**

Course Outcomes: Having completed this course, the learner will be able to	
1.	Students should understand and apply the principles of set theory in business contexts, such as market segmentation, probability and decision analysis.
2.	To have a proper understanding of Statistical and Mathematical applications in Economics, Finance, Commerce and Management Integrate international business concepts with functioning of global trade.
3.	Convert the problem into a Mathematical model and solve it manually.
4.	Student should demonstrate proficiency in calculating and interpreting determinants, using them in solving systems of linear equations, and applying them to model real-world business scenarios.
5.	Students should able to manipulate matrices effectively, including matrix operations, determinants, inverses, and transpose, and utilize them in business applications such as optimization, production planning, and finance.
6.	Students should able to calculate and interpret measures of central tendency, such as mean, median, and mode to analyze and summarize business data, such as sales figures, market research results, and financial statements.
7.	Student should able to compute measures of dispersion, such as variance and standard deviation, to understand the spread and variability of data, and apply them in risk analysis, quality control and financial risk assessment.

Suggested References:	
Sr. No.	References:
1.	Sancheti & Kapoor: Statistic: Theory, Methods and Applications, Sultan Chand & Sons, New Delhi.
2.	Kapoor, V. K.: Business Mathematics, Sultan Chand and Sons, New Delhi.
3.	Soni, R. S.: Business Mathematics, Pitamber Publishing House.
4.	H. A. Taha, Operations Research Macmillan Publishing Co. Inc.
5.	J. K. Sharma: O. R. Theory and Applications, Macmillan India Ltd.
6.	A.J. Patel, H.S. Doshi: Operations Research, Himalaya Publishing House.

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