



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 – 2026

Bachelor of Business Administration (B.B. A.) (General)

Semester – I

Course Code	UMB1MDBMT01	Title of the Course	Business Mathematics – I
Total Credits of the Course	04	Hours per week	04

Course Learning Outcomes (CLO): Having completed this course, the students will be able to

CLO 1	Students will be able to understand, apply, and analyse the principles of set theory and determinants, including their properties, to solve business-related problems such as systems of linear equations and evaluating the feasibility of business plans.
CLO 2	Student will be able to manipulate matrices effectively, including matrix operations, determinants, inverses, and transpose, and apply them in various business applications, such as production planning and financial analysis.
CLO 3	Students will be able to understand, apply and analyse' coordinate geometry concepts (distance, slope, equations, and intersection of lines) to solve and interpret business-related problems.
CLO 4	Students will be able to apply mathematical concepts and techniques in the field of finance, such as understanding interest rates and calculating present and future values of annuities.

Course Content

Unit No.	Description	Weightage (%)	CLO(s)
1.	Set Theory and Determinant: Set Theory: 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, De 'Morgan laws and Cartesian Product of two sets. Application of set theory in commerce. Determinant: Meaning of 2×2 Determinant, Expansion of third order determinant, properties of determinant (without proof), Cramer's Method for solving system of linear equations for two and three variables only.	25%	CLO 1
2.	Matrix: Definitions of matrix, Type of matrices: Row matrix, Column Matrix, Square Matrix, Null Matrix, Transpose of Matrix, Symmetric Matrix, skew symmetric Matrix, Diagonal Matrix, Scalar Matrix, Identity Matrix, Adjoin of Matrix, Inverse of Matrix, Addition, Subtraction, Scalar product and Multiplication of Matrices, Solution of linear equations for two and three variables. Application of Matrix in commerce.	25%	CLO 2



3.	Co-ordinate Geometry: Cartesian Co-ordinate System, Distance between two points (without proof), slope of line, slope of parallel and perpendicular lines, Intersect point of two lines, Equations of line (1) Two Point Form (2) Point and Slope form (3) Intercept and slope form (4) Two Intercept form and example on it. Application of Coordinate Geometry in commerce.	25%	CLO 3
4.	Mathematics in Finance: Compound Interest, Nominal and Effective Rates of Interest, Continuous compounding, Concept of Present value and Amount of a Sum, Annuity (only for a fixed period of time), Present and Future value of Annuity, Sinking funds (with equal payments and equal time intervals)	25%	CLO 4

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.
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Internal and External Examination Evaluation

Sr. No.	Details of the Evaluation / Exam Pattern	50 Marks (%)
1	Class Test (at least one)	15 (30%)
2	Quiz (at least one)	15 (30%)
3	Active Learning	05 (10%)
4	Home Assignment	05 (10%)
5	Class Assignment	05 (10%)
6	Attendance	05 (10%)
Total Internal (%)		50 (100%)
Final Examination		50 (100%)

Notes:

- ❖ Multiple Choice Questions will be based on Bloom's Taxonomy Level 1 & 2.
- ❖ Class test and written examination questions will be based on various levels of Bloom's Taxonomy.

CLO-PLO Matrix (Course Learning Outcomes-Programme Learning Outcomes)

CLO	PLO										
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11
CLO1	2	2	2	–	1	–	2	–	–	–	1
CLO2	2	2	2	–	2	–	2	1	–	–	1
CLO3	1	2	2	–	1	–	2	–	–	–	–
CLO4	2	2	2	1	2	–	2	1	1	–	1

(Scale: 3: Strong, 2: Moderate, 1: Low, ---: No Correlation)

Suggested Learning Material Books:

Sr. No.	Title	Author(s)	Year / Edition	Publisher
1	Statistics: Theory, Methods and Applications	D. C. Sancheti & V. K. Kapoor	2010 7th Revised Edition	Sultan Chand & Sons, New Delhi
2	Business Mathematics	V. K. Kapoor	2009 19th Revised Edition	Sultan Chand & Sons, New Delhi

3	Business Mathematics	R. S. Soni	2009	Pitamber Publishing House
4	Business Mathematics	Trivedi & Trivedi	2011	Pearson India Limited, New Delhi
5	Business Mathematics	Dr. K. R. Kachot	2015	Mahajan Publication House

Online Resources (Open Sources)

Sr. No.	Description of Resource	Web Link
1	A to Z math – Online Mathematics Learning and Problem-Solving Resource	https://atozmath.com/default.aspx
2	e-PG Pathshala (INFLIBNET) – E-learning Resources for Higher Education	https://epgp.inflibnet.ac.in/error/InternalError.aspx?aspxerrorpath=/
3	SWAYAM MOOCs – Mathematics & Statistics Courses	https://swayam.gov.in/explorer?category=Math_and_Sciences