Name of Faculty	:	Faculty of Engineering & Technology
Name of Program	:	Diploma Engineering
Course Code	:	1DBM01
Course Title	:	Basic Mathematics
Type of Course	:	Basic Science (BS)
Year of Introduction	:	2023-24

Prerequisite	:	Algebraically analyze, Trigonometry formula ,vector
Course Objective	:	To understand the formula of Trigonometry formula ,vector and algebraically analyze.
Course Outcomes	:	At the end of this course, students will be able to:
	CO1	Demonstrate the ability to Crack engineering related problems based on Matrices.
	CO2	Demonstrate the ability to algebraically analyze basic functions used in Trigonometry & Geometry
	CO3	Develop the ability to apply logarithm rule to significant applied problems
	CO4	Demonstrate the ability to Crack engineering related problems based on concepts of Vectors.

Teaching and Examination Scheme

Teaching Scheme (Contact Hours)			**Credits**	**Examination Marks**				
				Theory Marks		**Practical Marks**		**Total Marks**
L	**T**	**P**	**C**	**SEE**	**CIA**	**SEE**	**CIA**	
3	0	0	3	70	30	0	0	100

Legends: ***L****-Lecture;* ***T****–Tutorial/Teacher Guided Theory Practice;* ***P*** *– Practical,* ***C*** *– Credit,* ***SEE*** *– Semester End Examination,* ***CIA*** *- Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.))*

Course Content

Unit No.	Topics	Teaching Hours	Weightage	Mapping with CO
1	**Determinant and Matrices** Determinant and its value up to 3rd order(without properties),Concept of Matrix , Types of Matrices ,Addition, Subtraction and multiplication by scalar of matrices, Product of two matrices , Adjoint and Inverse of a matrix of order 2X2 and 3X3,Solution of Simultaneous linear equations of two variables	11	17%	CO1
2	**Trigonometry** Units of Angles (degree and radian), Trigonometric Functions Allied & Compound Angles, Multiple–Submultiples angles periodic Trigonometric function, Sum and factor formulae	11	15%	CO2
3	**Logarithm** Solve simple problems using concepts of Logarithms.	4	10%	CO3
4	**Coordinate Geometry** Straight line (Two-point form) and slope of straight line Slope point form, Intercept form, General form of line Condition of parallel and perpendicular lines, Equations of Parallel lines and Perpendicular lines to the given lines Angle between two lines, Equation of circle with canter and Radius. , General equation of circle.	7	15%	CO2 CO4
5	**Vectors** Vector, Addition, Subtraction, Magnitude and direction. Scalar and Vector Product and it's properties Angle between two Vectors, Applications of Scalar and Vector Product (Work Done and Moment of Force)	7	13%	CO4

Suggested Distribution of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyse	Evaluate	Create
Weightage	**20**	**25**	**30**	**10**	**15**	**-**

NOTE: This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Suggested List of Experiments/Tutorials

Sr. No.	Name of Experiment/Tutorial	Teaching Hours
1	Solve simple problems using the concept of algebraic operations of matrices and determinant	2
2	Use the concept of adjoint of a matrix to find the inverse of a matrix. Solve system of linear equations using matrices.	2
3	Use suitable software to demonstrate the geometric meaning of solution of system of linear equations.	2
4	Periodic functions, Sum/Diff and factor formulae, Inverse Trigonometric function etc. Allied & Compound Angles	2
5	Solve problems of the logarithm by using Concept of Rules and related Examples	2
6	Find Straight line (Two-point form) and slope of straight line Use Condition of parallel and perpendicular lines	2
7	Solution of Equations of Parallel lines and Perpendicular lines to the given lines ,Find Angle between two lines	2
8	Find Equation of circle with centre and Radius. General equation of circle	2
9	Practice Simple Examples ,Vectors 10 Example related to Dot and Cross Products and Applications	2

Suggested Learning Websites

Sr. No.	Name of Website
1	https://tutorial.math.lamar.edu/classes/calci/calci.aspx
2	https://www.nptel.ac.in
3	https://www.khanacademy.com

Reference Books

Sr. No.	Name of Reference Books
1	Mathematics-I By konch, De and Paul , Bhagabati Publication
2	Engineering Mathematics (Third edition) By Dr. Sachin J Gajjar ,Atul prakashan
3	Mathematics-I By A.Sarkar ,Naba prakashan
4	Mathematics-I By Dr. Sachin J Gajjar ,Atul prakashan