C.U.SHAH UNIVERSITY – Wadhwan City

FACULTY OF: - Technology and Engineering (Diploma Engineering)
DEPARTMENT OF: - Humanities, Mathematics & Sciences
SEMESTER: - I   **CODE**: - 2TE01BMT2
NAME – Basic Mathematics

Teaching & Evaluation Scheme:-

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evalution Scheme							Total Marks
							Theory				Practical (Marks)			
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University	
							Marks	Hours	Marks	Hours	Pr	TW	Pr	
2TE01BMT2	Basic Mathematics	4	0	0	4	4	30	1.5	70	3	---	----	-----	100

Objectives: -

- Proficiency in Basic Mathematical tools
- Understanding the new basic concepts
- Apply the concepts and principles of mathematics to solve simple engineering problems

Prerequisites: -

- Addition, Subtraction, Multiplication, Division, Factorizations, Expansions and Trigonometric ratios.

Course Outlines:-

Sr. No.	Course Contents
1	**Coordinate Geometry:** Distance formula, Section formula, Slope of straight line, Intercept on axes, Different forms of equation of straight line, Definition of Circle, General equation of circle.
2	**Determinant and Matrices:** A brief idea of determinant of order two and three, Expansion of determinant s and its examples, Concepts of Matrix of order m x n, Types of matrices (null matrix, identity matrix), Scalar multiplication and addition of Matrices, Product of Matrices, Transpose and Adjoint of a matrix, Inverse of a Matrix, Solution of simultaneous linear equations up to two variables.
3	**Binomial theorem:** Meaning of the term n! (Factorial n) and nCr and its simple examples , Expansion of $(a + b)^n$, $n \in N$. General term of $(a + b)^n$, middle term/terms, constant term, Finding approximate value using binomial theorem.
4	**Trigonometry - 1:** Units of angles (Degree and radian), Allied angles, , Graphs of sine and cosine, Compound angles
5	**Trigonometry - 2:** Multiple – submultiples angles, Sum and factor formulae, Inverse trigonometric function

Learning Outcomes:-

- Find the distance between two points, use midpoint formula for quadrilateral.
- Find the equation of locus using distance formula.
- Find the equation of line using the different forms.
- Find the equation of circle.
- Solve simple problems using concepts of binomial theorem like middle term, constant term, coefficient of $(x + y)^n$.
- Solve simultaneous equations using concepts of matrices.
- Solve simple problems using concepts of trigonometry.

Books Recommended:-

1. "Polytechnic mathematics" , **D. S. Prakash** ,S. Chand company ltd.
2. "Polytechnic Mathematics" , **S. P Deshpande ,** Pune Vidyarthi Gruh Prakashan, 1984
3. "Engineering Mathematics(third edition)" , **Anthony croft and others** , Pearson   Education,2012
4. "Advanced Mathematics for polytechnic", **N. R. Pandya** , Macmillan Publishers India Ltd., 2012
5. "Applied Mathematics – I", **W. R. Neelkanth** ,Sapna Publication