

# C.U.SHAH UNIVERSITY – Wadhwan City



**FACULTY OF:** - Technology and Engineering (Diploma Engineering)  
**DEPARTMENT OF:** - Humanities, Mathematics & Sciences  
**SEMESTER:** - I **CODE:** - 2TE01BMT3  
**NAME** – Basic Mathematics

## Teaching & Evaluation Scheme:-

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical /Tutorial (Marks)			Total Marks
							Sessional Exam		University Exam		Internal		Total	
							Marks	Hours	Marks	Hours	Pr	TW		
<u>2TE01BMT3</u>	Basic Mathematics	3	2	0	5	4	30	1.5	70	3	30	20	50	150

## 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	<b>Coordinate Geometry:</b> 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	<b>Determinant and Matrices:</b> A brief idea of determinant of order two and three, Expansion of determinant s and its examples, Concepts of Matrix of order $m \times n$ , 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	<b>Binomial theorem:</b> Meaning of the term $n!$ (Factorial $n$ ) and $nCr$ and its simple examples, Expansion of $(a + b)^n$ , $n \in \mathbb{N}$ . General term of $(a + b)^n$ , middle term/terms, constant term, Finding approximate value using binomial theorem.
4	<b>Trigonometry - 1:</b> Units of angles (Degree and radian), Allied angles, , Graphs of sine and cosine, Compound angles
5	<b>Trigonometry - 2:</b> 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 division point using section 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