C.U.SHAH UNIVERSITY – Wadhwan City

FACULTY OF: - Technology and Engineering (Diploma Engineering)
DEPARTMENT OF: - Humanities, Mathematics & Sciences
SEMESTER: - II **CODE**: - 2TE02AMT3
NAME – Advanced Mathematics

Teaching & Evaluation Scheme:-

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evalution Scheme							
							Theory				Practical /Tutorial (Marks))			Total Marks
							Sessional Exam		University Exam		Internal		Total	
		Th	Tu	Pr	Total		Marks	Hours	Marks	Hours	Pr/Viva	TW		
2TE02AMT3	Advanced 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: -

- Basic Mathematics

Course Outlines:-

Sr. No.	Course Contents
1	**Limit:** Concept and rules of limit, Standard formulae and related examples
2	**Differentiation - 1:** Definition and standard formulae, Rules of sum, product, quotient of functions and related examples, Chain rule
3	**Differentiation - 2:** Derivative of Parametric functions, Derivative of Implicit functions, Logarithmic differentiation, Successive differentiation up to second order, Application (Velocity, Acceleration)
4	**Integration - 1:** Concept, Integral of standard functions, Rules of integration, Evaluation of simple indefinite integrals, Integration by parts, Integration by substitution.
5	**Integration - 2:** Definite Integral and its properties, Solution of simple problems of definite integral, Application (Area and Volume of circle, parabola and ellipse only)
6	**Vector Algebra:** Basic concept of Vector and Scalar, Geometrical representation of vectors, Addition, Subtraction and Scalar multiplication of vectors, Magnitude of vector and unit vector, Direction cosines of vector, Dot and Cross product of vectors, Application (Work done by force)

Learning Outcomes:-

- Solve the problem related to limit
- Apply the knowledge of differentiation to find velocity, acceleration
- Apply the knowledge of integration for finding Area and Volume
- Solve simple problems using concepts of vector algebra

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