16BSM102: General Mathematics-I (Group B)										
Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3		--	3	3	25	50	25	--	--	100

OBJECTIVES

1) To make students acquainted with basic of sets, relation and functions.
2) To familiarize the students with concept complex variable.
3) To introduce concept of matrix, determinants and their use to solve system of equation
4) Learn fundamental of differential and integral calculus.
5) Demonstrate concepts and visualization of analytical geometry.

SYLLABUS

Unit-I	**10**

Sets, Relations and Functions: Sets and their representation. Union, intersection and compliment. Mapping or function. One-one, onto mappings. Inverse and composite mappings.

Complex Numbers: Definition and geometrical representation. Algebra. Complex conjugate. Modulus and amplitude. Polar form. DeMoivre's theorem. Roots of complex numbers. Simple functions.

UNIT II	**10**

Matrices and Determinants: Algebra of matrices. Determinant of a square matrix. Properties of determinants. Some simple type of matrices. Inverse of a matrix. Solution of equations. Intersections. Distance between two points. Shortest distance between lines.

UNIT III	**10**

Differential Calculus: Basic concept of limit and continuity. Derivative. Rules of differentiation. Tangent to a curve. Taylor's series. Maxima and minima.

Integral Calculus: Antiderivative, Fundamental theorem of calculus (statement only). Integrals of elementary functions. Substitution and partial fractions. Definite integral as a limit of sum. Properties of definite integrals. Application to areas and lengths

UNIT IV	**9**

Two dimensional coordinate Geometry: Cartesian coordinate system. Distance between two points. Equation of line in different forms. Equations of circle, ellipse and parabola. Equation of a tangent to a curve. Area of a triangle.

APPROXIMATE TOTAL	**39 Hours**

OUTCOMES

1. Able to perform set operations.
2. Able to understand functions and its composition.
3. Able to do perform operations on complex variables.
4. Able to perform basic matrix operations.
5. Able to solve linear system of equations.
6. Able to find rate of change of any function and further maxima and minima.
7. Able to find area and length using integrals
8. Acquainted with equation of line, circle, sphere, ellipse and parabola.

TEXTS AND REFERENCES

1. **Thomas, G. B. and Finney, R. L.,** Calculus and analytical geometry, 9th Ed., Pearson Education Asia (Adisson Wesley), New Delhi, 2000
2. **NCERT,** Mathematics Textbook for class XI and XII, 2009.
3. **Sharma, R.D.,** Mathematics, Dhanpat Rai Publications, New Delhi, 2011.
4. **Raisinghania, M.D.,** Ordinary and Partial Differential Equations by, 8th edition, S. Chand Publication (2010).