16BSM202 - GENERAL MATHEMATICS-II (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 introduce the concept of vectors and co-ordinate geometry, differential equations, basics of statistics and numerical methods.
2. Methods for solving problems encountered in Mathematics

SYLLABUS

Unit-I	**10**

Vectors and Coordinate Geometry (3D): Vectors and their algebra. Simple applications to geometry and mechanics. Unit vectors, vectors i, j and k. Components of a vector. Position vector. Direction cosines and direction ratios. Dot and cross products. Projection of a vector on another. Distance between two points. Equations of a line, plane and sphere. Intersections. Distance between two points. Shortest distance between lines.

UNIT II	**10**

Elementary Differential Equations: Definitions of order, degree, linear, nonlinear, homogeneous and non-homogeneous. Solution of first order equations. Complementary function and particular integral. Initial and boundary value problems. Linear differential equations with constant coefficients. Cauchy-Euler equation.

UNIT III	**10**

Basic Statistics Classification of data. Mean mode, median and standard deviation. Frequency distributions and Measures of Central Tendency, Measures of Dispersion, Skewness and Kurtosis

UNIT IV	**9**

Basics of Numerical Methods: Calculus of finite differences, Difference formula, difference table, Effects of an error in a tabular value, The operator E, Properties of two operators E and Δ, Factorial Notations, Methods of any given polynomial in factorial notation, Lebinitz rule.

APPROXIMATE TOTAL	**39 Hours**

OUTCOMES

1. Understand the concepts vectors and geometry
2. Enable to solve ordinary differential equations
3. Understanding the representation data and analyzing them,
4. Understanding of operators and notations used in Numerical Analysis

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).
5. **S.C. Gupta, V.K. Kapoor,** Fundamentals of Mathematical Statistics, S. Chand & Sons