20BSM105T					Basic 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	0	0	3	3	25	50	25	--	--	100

COURSE OBJECTIVES

- To be able to understand the applications of vectors in real world.
- To be able to solve differential equations.
- To be able to classify the data and can measure the central tendency.
- To study the numerical solution of algebraic and transcendental equations

UNIT 1 VECTOR AND COORDINATE GEOMETRY (3D) **10 Hrs.**

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 2 ELEMENTARY DIFFERENTIAL EQUATIONS **10 Hrs.**

Definitions of order, degree, linear, nonlinear, homogeneous and non-homogeneous. Solution of first order equations.

UNIT 3 BASIC STATISTICS **10 Hrs.**

Classification of data. Mean mode, median and standard deviation. Frequency distributions and Measures of Central Tendency.

UNIT 4 BASICS OF NUMERICAL METHODS **10 Hrs.**

Types of errors, Significant figures, Solution of Algebraic and transcendental equations, Bisection method, False-Position method, Iteration method, Newton-Raphson method.

40 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to
CO1 – Identify the use of 2D and 3D vectors in daily life.
CO2 – Understand the concept of basic distance formulas in 1D, 2D and 3D and their applications.
CO3 – Explain the types of differential equations and solve according to various categories and shortcut methods.
CO4 – Analyze the supplied data statistically and measure the results according to the requirement.
CO5 – Appraise mathematical problems from real world which contains transcendence nature.
CO6 – Evaluate approximate solutions of linear and nonlinear equations.

TEXT / REFERENCE BOOKS

1. G. B. Thomas and Finney, R. L., Calculus and analytical geometry, 9th ed., Pearson Education Asia, 2000.
2. NCERT**,** Mathematics Textbook for class XI and XII, 2009.
3. Sharma, R.D.**,** Mathematics, Dhanpat Rai Publications, New Delhi, 2011.
4. M. D. Raisinghania, Ordinary and Partial Differential Equations by, 8th ed., S. Chand Publication, 2010.
5. S.C. Gupta, V.K. Kapoor, Fundamentals of Mathematical Statistics, 10th edition, S. Chand & Sons Publ., 2000.
6. B. S. Grewal, Higher Engineering Mathematics, 42nd ed., Khanna Publishers, New Delhi, 2012.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100	**Exam Duration: 3 Hrs.**
Part A: 6 questions of 4 marks each	24 Marks
Part B: 6 questions of 8 marks each	48 Marks
Part C: 2 questions of 14 marks each	28 Marks