Programme Name	Master of Commerce
Semester	First
Paper No	1.32
Course Code	
Course Name	Mathematical Statistics (Paper – 1)
Course Type	Elective Course
Effective from	JUNE 2011
Objective	To present a clear, simple systematic and comprehensive exposition of the methods, principles and techniques of Statistics in various discipline with special reference to commerce, management, economics and business.

Unit No.	Topic No.	Content	Hrs.	Marks W + %	Credit
1	01	Mathematical Statistics & Distribution Theory Factorial and Cumulant generating function. Definition of characteristic function and its properties without proof. Statement of inversion theorem (without proof) on characteristic function. Their uses for binomial, Poisson and normal distributions. Definition of a statistic and its standard error, standard error of sample mean, sample standard deviation and sample correlation co-efficient and uses of standard error.	15	25	01
2	02	Elements of Markov chain Definition of Markov chain with finite state space. Definition of a transition probability matrix and initial probability distribution of Markov chain. Statement of Chapmann – Kolmogrov equations. Simple application of Markov chain and examples with state space up to three states only.	15	25	01
3	03	Distribution Theory Negative binomial and Multinomial distribution, Uniform, Exponential, Gamma and Log normal distributions. χ^2 , t, F distributions - Statement of p.m.f / p.d.f within of their mean and variance. Statement of other properties without proof.	15	25	01

4	04	Continuous Probability Distribution. Continuous univariate probability distribution. Definitions of moments etc for univariate continuous probability distributions. Characteristic function and its properties, Foarier's inversion theorem. Chebychev's Lemma (law of Large number), Bernoulli's theorem. Continuous bivariate probability distributions, Bivariate normal distribution, probability density function of B. N. D., properties of B. N. D. (Results and numerical examples should be asked)	15	25	01

Reference :

1. Rohatgi V.R.(1984) : Introduction to prob. Theory and Mathematical Statistics (Wiley Eastern)
2. Goon, Gupta and Dasgupta(1970) : An outline of Statistical Theory Vol. I & II (World Press, Calcutta)
3. S. C. Gupta and V. K. Kapoor(1990) : Fundamentals of applied Statics (Sultan Chand and Sons)
4. Jaiswal M.C. (1972) : Statistical Distributions, Gujarat University, Ahmedabad
5. Mohse-Beh-Horim and Levy H.(1984) : Statistical Decision and applications in business and Economics, McGraw Hill)
6. Meyer P.L. (1970) : Introduction to Probability and Statistical Applications (Addison - Wesley)
7. Hogg and Craig (78) : Introduction to Mathematical Statistics (Collier - M)
8. Feller W. : Introduction to Prob. Theory And applications Vol Eastern)

Note : 60 % for examples and 40 % for theory weightage compulsory for each question.