Programme Name	Master of Commerce
Semester	First
Paper No	1.42
Course Code	
Course Name	Mathematical Statistics (Paper – 2)
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	Estimation Theory & Methods of Estimati on Concept and definition of an estimator and estimate. Unbiadness, efficiency and consistency of estimators. Statement of Cramer - Rao inequality without proof, Minimum variance bound unbiased estimator and its uniqueness Definition of a sufficient statistic and statement of factorization theorem - examples.	15	25	01
2	02	Method of moments and maximum likelihood, Properties of the maximum likelihood estimators without proof. Definition of confidence interval using a pivotal quantity, construction of 95 and 99 percent confidence intervals for the mean, variance, difference of means of normal population using suitable pivotal quantities. Confidence intervals of population and difference of properties.	15	25	01
3	03	Testing of Statistical Hypothesis Statement of a statistical hypothesis, Simple and composite hypothesis, Two types of errors. Formulation of a non randomized test and critical region and definition of probability of type I & type II errors, Statement of Neyman-Pearson lemma for non-randomised test for testing a simple null against a simple alternative, Definition of likelihood.	15	25	01
4	04	Non-parametric tests Idea of non-parametric tests. Advantages and disadvantages of non-parametric tests. Sign. Wilcokon, Mann-Whitney, Median, run test for one and two samples.	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, Ahemdabad
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.