

1.	Title of the course	Probability and Statistics
2.	Course number	MA204L
3.	Structure of credits	3-0-0-3
4.	Offered to	UG
5.	New course/modification to	Modification To MA2023/09
6.	To be offered by	Department of Mathematics and Statistics
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	Course Objective(s): To introduce the fundamentals of probability theory and the basic techniques of statistics. To demonstrate methods to solve applied problems of probability and applications of statistics.	
10.	Course Content: Probability: Probability models and axioms, conditioning and Bayes' rule, independence discrete random variables; probability mass functions; expectations, examples, multiple discrete random variables: joint PMFs, expectations, conditioning, independence, continuous random variables, probability density functions, expectations, examples, multiple continuous random variables, transformation of random variables, covariance and correlation, iterated expectations, convolution; notion of convergence, weak law of large numbers, central limit theorem. Statistics: Concepts of Statistical Inference, Point Estimation, Methods of Estimation, Confidence Intervals, Testing of Hypotheses, Bayesian Statistical Inference.	
11.	Textbook(s): 1. Bertsekas D and Tsitsiklis J, <i>Introduction to Probability</i> , Athena Scientific (2008).	
12.	Reference(s): 1. Chung K L, <i>Elementary Probability Theory with Stochastic Process</i> , Springer Verlag (1974). 2. Drake A, <i>Fundamentals of Applied Probability Theory</i> , McGraw-Hill (1967). 3. Kreyszig E, <i>Advanced Engineering Mathematics</i> , John Wiley & Sons (2010). 4. Ross S, <i>A First course in Probability</i> , Prentice Hall of India (2009).	