

Course Title:				Probability and Statistics					
Course Code:				MTLMD204					
Course Coordinator				Dr. Rakesh Kumar					
Credits				4-0-2=05					
Evaluation Scheme Total 100 Marks									
Quiz (Total 20 Marks)				Assignment/Project (Total 20 marks) (Minimum Two Assignments or one Project)		Mid-Term	Major Examination	Total	
Quiz I (5 marks)	Quiz II (5 marks)	Quiz III (5 marks)	Quiz IV (5 marks)			20 marks) (1 ½ Hour Duration)	(40 marks) (3 Hour Duration)	100 Marks	
WEEKS				TOPICS TO BE COVERED					
Week 1				Definitions, Scope and importance of statistics, General nature of statistical data, qualitative and quantitative data, discrete and continuous data, Primary and secondary data,					
Week 2				Classification & Tabulation, frequency distribution and their graphical and diagrammatic representations histogram, frequency curves, bar diagram, Ogives					
Week 3				Measures of central tendency: Arithmetic Mean, Geometric Mean, Harmonic Mean, Median and mode, their merits and demerits					
Week 4				Measures of Dispersion: Range. Inter Quartile range, Mean Deviation, Standard Deviation, Variance & Coefficient of Variation					
Week 5				Skewness and Kurtosis: Meaning and measures					
Week 6				Probability: Random experiment, events, algebra of events, definitions of Probability, conditional Probability, Independent events, simple illustrations					
Week 7				Bayes Theorem and its applications, Probability mass function (pmf)					
Week 8				Probability density function (pdf), joint, marginal and conditional pmf and pdf					
Week 9				Independence of random variables, Discrete and continuous random variables					
Week 10				Mathematical expectation, expectation of sum of two random variables and product of two independent random variables					
Week 11 (17th -21st March, 2025)				Mid-Term					

2 nd April, 2025	Showing of Mid-Term Answer Sheets
Week 13	Conditional expectation and conditional variance, moment generating function and its properties.
Week 14	Bivariate data: Correlation and Regression, Karl Pearson Correlation Coefficient
Week 15	Spearman Rank Correlation coefficient, Regression lines, Curve fitting by the method of least squares
Week 16	Fitting of straight lines, second degree parabolas and more general curves
Week 17 (5 th -9 th May, 2025)	Revision Week
Week 18 (13 th - 22 nd May, 2025)	Major Examinations
29 th May, 2025	Showing of Major Exams Answer Sheets

Course Outcomes:

After successful completion of the course, the students will be able to

CO1: learn and apply the graphical presentation tools while analysing real time data

CO2: understand and apply the measures of central tendency and measures of dispersion in solving real life problems

CO3: Understand and apply the concepts of probability and probability functions in solving real life problems

CO4: Understand and apply correlation and regression analysis in real life situations

Recommended Books:

1. A.M. Goon, M.K. Gupta and B. Das Gupta, Fundamental of Statistics, Vol. I & Vol. II, World Press, 1988.
2. A.M. Goon, M.K. Gupta, B.Das Gupta, A Dublin of Statistical Theory-Vol. I & II, World Press, 1983.
3. S.C. Gupta , V.K. Kapoor, Fundamentals of Mathematical Statistics, Sultan Chand and Sons, 2005.
4. V.K. Rohatgi, An Introduction to probability theory and mathematical statistics, Wiley Eastern Publisher Ltd., 1988.
5. S.P. Gupta, Statistical Methods, Sultan Chand and Sons, 2012.

Tentative Calendar of Quizzes and Assignments. The exact dates and time will be informed in due course of time.

Component	Date
Quiz-I	27 th -31 st , January 2025
Quiz-II	24 th -28 th February, 2025
Assignment-I	10 th -12 th February, 2025
Mid-Term	17-21 st March, 2025
Assignment-II/ Project Submission	21 st – 24 th April, 2025
Quiz-III	7 th – 11 th April, 2025
Quiz-IV	28 th April-2nd, May, 2025
Major Exam	13 th – 22 nd May, 2025

Signature of Course Coordinator :

