101009/ MA100B STATISTICS, PROBABILITY AND CALCULUS

Course Contents and Lecture Schedule

No	Topic	No. of Lectures
1	**Module 1: Introduction to Statistics** (10 hours)	
1.1	Definition of Statistics. Basic objectives.	1
1.2	Applications in various branches of science with examples.	3
1.3	Collection of Data: Internal and external data, Primary and secondary Data.	3
1.4	Population and sample, Representative sample	3
2	**Module 2: Descriptive Statistics (9 hours)**	
2.1	Classification and tabulation of univariate data, graphical representation, Frequency curves.	3
2.2	Descriptive measures - central tendency and dispersion.	3
2.3	Bivariate data. Summarization, marginal and conditional frequency distribution	3
3	**Module 3: Probability(6 hours)**	
3.1	Concept of experiments, sample space, event	2
3.2	Definition of Combinatorial Probability.	2
3.3	Conditional Probability, Bayes Theorem.	2

4	**Module 4: Probability distributions(12 hours)**	
4.1	Discrete & continuous distributions, Binomial, Poisson and Geometric distributions.	2
4.2	Uniform, Exponential, Normal, Chi-square, t, F distributions.	7
4.3	Expected values and moments: mathematical expectation and its properties, Moments (including variance) and their properties, interpretation, Moment generating function	3
5	**Module 5: Calculus (8 Hours)**	
5.1	Basic concepts of Differential Calculus	2
5.2	Differentiation formula	2
5.3	Basics of Integral Calculus	2
5.4	Application of double and triple integral.	2
	Total	45 hours