

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**  
**COURSE PLAN June - November 2024**

**Department** : MATHEMATICS  
**Name of the Faculty** : Dr. V. DHANALAKSHMI  
**Course Title** : MATHEMATICAL STATISTICS -I  
**Course Code** : 23MT/AC/ST35  
**Shift** : 1

**COURSE OUTCOMES (COs)**

<b>COs</b>	<b>Description</b>	<b>CL</b>
<b>CO1</b>	recall the basic concepts of probability distributions, expectations, correlation and regression	<b>K1</b>
<b>CO2</b>	demonstrate a comprehensive understanding of concepts related to random variables, mathematical expectation, probability distributions and relation between two variables	<b>K2</b>
<b>CO3</b>	apply the statistical principles to solve problems involving one and two-dimensional variables	<b>K3</b>
<b>CO4</b>	analyse and interpret various probability distributions, and the relational coefficients	<b>K4</b>
<b>CO5</b>	critically evaluate the appropriateness and effectiveness of statistical models and tools	<b>K5</b>

<b>Week</b>	<b>Unit No.</b>	<b>Content</b>	<b>Cognitive Level</b>	<b>Teaching Hours</b>	<b>COs</b>	<b>Teaching Learning Methodology</b>	<b>Assessment Methods</b>
Jun 19 – 26, 2024 (Day Order 1 - 6)	1	Random Variables 1.1 Cumulative Distribution Function 1.2 Properties of Cumulative Distribution Function	K1-K5	5	CO1-5	Lecture	Slip Test
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1	Random Variables 1.3 Two-Dimensional Random Variables 1.4 Marginal and Conditional Probability Distribution	K1-K5	5	CO1-5	Examples	Homework
July 5 – 12, 2024 (Day Order 1 - 6)	1&2	Random Variables 1.4 Marginal and Conditional Probability Distribution – Problems Mathematical Expectation 2.1 Mean and Variance and their Properties	K1-K5	5	CO1-5	Group Discussions	Peer evaluation
July 15 – 23, 2024 (Day Order 1 - 6)	2	Mathematical Expectation 2.2 Expected Value of a Function of one and two Dimensional Random Variable 2.3 Covariance of X, Y 2.4 Conditional Expected Values	K1-K5	5	CO1-5	Lecture	Assignment from Unit 1 (20 marks)
July 24 – 31, 2024 (Day Order 1 - 6)	2	Mathematical Expectation 2.5 Moment and Cumulant Generating Function 2.6 Characteristic Function 2.7 Tchebycheff Inequality	K1-K5	5	CO1-5	Problem Solving	Quiz
Aug 1 – 5, 2024 (Day Order 1 - 3)	3	Special Discrete Probability Distributions 3.1 Binomial Distribution: Characteristic Function, Mean, Mode and Variance, Recurrence Formula	K1-K5	2	CO1-5	Lecture	Problem Test

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Aug 6 – 10, 2024	<b>C.A. Test - I</b>						
Aug 12 – 14, 2024 (Day Order 4-6)	3	Special Discrete Probability Distributions 3.2 Poisson Distribution: Moment Generating Function, Central Moments, Recurrence Formula, Mode and Additive property	K1-K5	3	CO1-5	Lecture	Peer Evaluation
Aug 16 – 23, 2024 (Day Order 1-6)	3	Special Discrete Probability Distributions 3.2 Poisson Distribution: Moment Generating Function, Central Moments, Recurrence Formula, Mode and Additive property	K1-K5	5	CO1-5	Lecture	Quiz
Aug 27 – Sep 3, 2024 (Day Order 1-6)	3&4	Special Discrete Probability Distributions 3.3 Poisson Distribution as a Limiting Form of Binomial Distribution Normal Distribution 4.1 Normal distribution: Mean, Variance, Median, Mode, Central Moments, Mean Deviation about the Mean	K1-K5	5	CO1-5	Group Discussions	Problem Test
Sep 4 – 11, 2024 (Day Order 1-6)	4	Normal Distribution 4.1 Normal distribution: Quartile Deviation, Moment Generating Functions, Additive Property 4.2 Normal Probability Curve and its Characteristics	K1-K5	5	CO1-5	Problem Solving	Assignment from Unit 3 (20 marks)
Sep 12 - 20, 2024 (Day Order 1-6)	4&5	Normal Distribution 4.3 Normal Distribution as a Limiting Form of Binomial Distribution Correlation 5.1 Scatter Diagram	K1-K5	5	CO1-5	Lecture	Presentation

<b>Week</b>	<b>Unit No.</b>	<b>Content</b>	<b>Cognitive Level</b>	<b>Teaching Hours</b>	<b>COs</b>	<b>Teaching Learning Methodology</b>	<b>Assessment Methods</b>
Sep 23 - 26, 2024 (Day Order 1-4)	5	Correlation 5.2 Types of Correlation 5.3 Correlation Coefficient and its Properties	K1-K5	3	CO1-5	Problem Solving	Slip Test
Sep 27 – Oct 3, 2024	<b>C.A. Test - II</b>						
Oct 4 – 5, 2024 (Day 5 & 6)	5	Correlation 5.4 Correlation of Grouped Bi-variate Data	K1-K5	2	CO1-5	Lecture	Questioning
Oct 7 - 15, 2024 (Day Order 1 to 6)	5	Correlation 5.5 Rank Correlation Coefficient 5.6 Merits and Demerits Regression 5.7 Equation of the Regression Line of Y on X	K1-K5	5	CO1-5	Group Discussions	Quiz (10 marks)
Oct 16 - 22, 2024 (Day Order 1 to 6)	5	Regression 5.8 Properties of Regression Coefficients 5.9 Standard Error of Estimate of Y	K1-K5	5	CO1-5	Lecture	Questioning
Oct 23 - 24, 2024 (Day Order 1 to 2)	<b>REVISION</b>						