

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN June - November 2024

Department : MATHEMATICS
Name of the Faculty : Dr. AMALORE ARUMICA
Course Title : MATHEMATICAL STATISTICS - I
Course Code : 23MT/AC/ST35
Shift : II

COURSE OUTCOMES (COs)

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

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
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	III Component Problem 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	3	CO1-5	Lecture	Problem Test

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Aug 6 – 10, 2024	C.A. Test – I (Units 1 and 2)						
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	2	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	Quiz from Unit 3 (10 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

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Sep 23 - 26, 2024 (Day Order 1-4)	5	Correlation 5.2 Types of Correlation 5.3 Correlation Coefficient and its Properties 5.4 Correlation of Grouped Bi-variate Data	K1-K5	4	CO1-5	Problem Solving	Slip Test
Sep 27 – Oct 3, 2024	C.A. Test – II (Units 3 and 4)						
Oct 4 – 5, 2024 (Day 5 & 6)	5	Correlation 5.4 Correlation of Grouped Bi-variate Data	K1-K5	1	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	III Component Test from Unit 5 (20 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)	REVISION						