STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (June - November 2026)

Department : Mathematics

Name/s of the Faculty : Dr. Rini Angeline Sahayamary A

Course Title : Mathematical Statistics

Course Code : 25MC/MC/ST35

Shift : II

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	explain the concepts of random variables, probability distributions, and their properties	K1
CO2	apply mathematical expectation to compute mean, variance, and moments K2 for discrete and continuous distributions	K2
CO3	analyze correlation and regression techniques to study relationships K3 between variables	K3
CO4	evaluate sampling methods and sampling distributions to estimate K4 population parameters	K4
CO5	perform tests of significance using standard probability distributions and K5 draw valid statistical inferences	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 15 – 22, 2026 (Day Order 1- 6)	1	**Random Variables** 1.1 Introduction 1.2 Discrete and continuous random variables	K1-K5	5	CO1-5	Lecture	Slip Test
Jun 23 – July 1, 2026 (Day Order 1- 6)	1&2	**Random Variables** 1.3 Cumulative Distribution Functions 1.4 Joint Distribution of two variables (Discrete) **Mathematical Expectation** 2.1 Mean and Variance and their properties	K1-K5	5	CO1-5	Learning by Doing	Homework
July 2 – July 8, 2026 (Day Order 1- 6)	2	**Mathematical Expectation** 2.2 Expectations: Mean, Variance and Moments (Discrete) 2.3 Uniform Distribution (Discrete) 2.4 Binomial Distribution	K1-K5	5	CO1-5	Lecture and Presentation	Peer evaluation
July 9 – 16, 2026 (Day Order 1- 6)	2	**Mathematical Expectation** 2.5 Continuous Probability Distribution 2.6 Uniform Distribution (Continuous) 2.7 Normal Distribution	K1-K5	5	CO1-5	Learning by Doing	**III Component** Problem Assignment and Test from Unit 1(1.1, 1.2) (20 Marks)

July 17 – 24, 2026 (Day Order 1- 6)	2&3	**Mathematical Expectation** 2.8 Normal Approximation to Binomial **Correlation** 3.1 Scatter Diagram 3.2 Types of Correlation 3.3 Correlation Coefficient and its Properties	K1-K5	5	CO1-5	Lecture and Presentation	Quiz
July 25 – 28, 2026 (Day Order 1- 3)	3	**Correlation** 3.4 Correlation of Grouped Bi-Variate Data 3.5 Rank Correlation Coefficient	K1-K5	3	CO1-5	Lecture and Presentation	Problem Test
July 29 – Aug 3, 2026	**C.A. Test – I** (Units 1 - 1.3, 1.4 and 2)						
Aug 4 - 6, 2026 (Day Order 4 - 6)	3	**Correlation** 3.5 Rank Correlation Coefficient 3.6 Merits and Demerits	K1-K5	2	CO1-5	Lecture	Peer Evaluation
Aug 7 – 14, 2026 (Day Order 1- 6)	3	**Regression** 3.7 Equation of the Regression Line of Y on X 3.8 Properties of Regression Coefficients 3.9 Standard Error of Estimate of Y	K1-K5	5	CO1-5	Lecture and Presentation	Quiz
Aug 17 - 24, 2026 (Day Order 1- 6)	4	**Sampling Theory** 4.1 Introduction 4.2 Types of Sampling 4.3 Method of Drawing Random Sample 4.4 Sampling Distributions of sample mean and sample proportion	K1-K5	5	CO1-5	Group Discussions	Problem Test
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	4	**Sampling Theory** 4.4 Sampling Distributions of sample mean and	K1-K5	5	CO1-5	Problem Solving	**III Component**

		sample proportion 4.5 Standard Error **Distribution used in Sampling Theory** 4.6 Standard Normal Distribution, Chi-Square Distribution, Student's t Distribution, Snedecor's F Distribution					Quiz from Unit 3 (10 marks)
Sep 3 – 11, 2026 (Day Order 1- 6)	4	**Distribution used in Sampling Theory** 4.6 Standard Normal Distribution, Chi-Square Distribution, Student's t Distribution, Snedecor's F Distribution 4.7 Relations between Standard Normal, Chi-Square, t, F Distribution	K1-K5	5	CO1-5	Lecture and Presentation	Presentation
Sep 15-17, 2026 (Day Order 1 - 3)	5	**Tests of Significance** 5.1 Statistical Hypothesis – Level of Significance, Critical Region, One-Tailed and Two-Tailed Tests, Type I & II Errors, Power of a Test	K1-K5	3	CO1-5	Problem Solving	Questioning
Sep 18 –23, 2026	**C.A. Test – II** (Units 3 and 4)						
Sep 24 - 28, 2026 (Day Order 4 – 6)	5	**Tests of Significance** 5.1 Statistical Hypothesis – Level of Significance, Critical Region, One-Tailed and Two-Tailed Tests, Type I & II Errors, Power of	K1-K5	2	CO1-5	Case Study	Slip Test

		a Test 5.2 Large Sample Tests					
Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	5	**Tests of Significance** 5.2 Large Sample Tests	K1-K5	5	CO1-5	Project	**III Component** Project from Unit 5(20 marks)
Oct 8 - 14, 2026 (Day Order 1 - 6)	5	**Tests of Significance** 5.3 Small Sample Tests	K1-K5	5	CO1-5	Lecture and Presentation	Questioning
Oct 15 - 17, 2026 (Day Order 1- 3)	**REVISION**						

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