STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (November 2024 – April 2025)

Department : ECONOMICS
Name/s of the Faculty : Ms. J KAVIYA NIJARITHA
Course Title : MATHEMATICAL METHODS FOR ECONOMICS
Course Code : 23EC/AC/MM25
Shift I

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	Understand the concepts of linear algebra and apply basic set of equations in economics	K1
CO2	Demonstrate the use of solving of system of simultaneous equations using matrix in economics	K2
CO3	Apply matrix and calculus in calculating the interrelationship between various economic variables	K3
CO4	Analyse the marginal productivity and cost theory using calculus	K4
CO5	Evaluate using in-depth mathematical methods to infer the nature various tools in economics	K5

CL – Cognitive Level
K1 – Remember | K2 – Understand | K3 – Apply | K4 – Analyse | K5 – Evaluate | K6 – Create

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Nov 18 – 25, 2024 (Day Order 1-6)	1	1.1Definition of the Cartesian system of coordinates, distance formula, coordinates of	K1-K3	5	1-5	Solving problem sums, Peer teaching and group discussion,	Assignment problem, Worksheet, CA, Quiz

		the point dividing the line joining two points in a given ratio, coordinates of the mid-point.				Solving HOTS questions	
Nov 26- Dec 3, 2024 (Day Order 1 to 6)	1	1.2Equations of straight lines in slope intercept form, slope and a given point form, Xand Y intercept form, two-point form.	K1-K4	5	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz
Dec 4-11, 2024 (Day Order 1 to 6)	1	1.3Angel between straight lines and conditions for parallelism and perpendicularism point of intersection of two straight lines	K1-K4	5	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz
Dec 12-19, 2024 (Day Order 1 to 6)	1 2	1.4 Economic applications to lines and angles- demand and supply equations, Application to Linear equations in Basic Macro Economic model- National Income – IS-LM model	K1-K4	5	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz

		2.1 Various types of matrices. Matrix operations- addition, subtraction, and multiplication					
Dec 20, 2024 (Day Order 1)	2	2.2 Determinants, properties of determinants, solving equations using Cramer's Rule.	K1-K3	1	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz
Jan 3 – 7, 2025 (Day Order 3 to 6)	2	2.3 Matrix inversion and solving equations using inverse of a matrix 2.4 Structure of input- output table, Static Leontief system	K1-K3	2	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz
Jan 8 – 17, 2024 (Day Order 1 to 6)	3	2.5 Solving open input output models and Hawkin-Simon Condition **Unit 3 Differential Calculus** 3.1 Variables, constants, and functions	K1-K3	5	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz

		3.2 Concept of limits, Continuous and Discontinuous functions (Bais concepts -no derivation)					
Jan 18 - 23, 2025	**C.A. Test - I**						
Jan 24 -31, 2025 (Day Order 1 to 6)	3	3.3 Definition of derivatives and rules of differentiation. Derivatives of $y=x^n, y = e^x, y = \log x$ (No derivation) 3.4 Function of a function rule, logarithmic, parametric, and implicit differentiation	K1-K4	5	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz
Feb 3-8, 2025 (Day Order 1 to 6)	3	3.5 Derivatives of three variable model 3.6 Partial and Total derivative – Youngs Theorem 3.7 Application to cross partial elasticity – Nature of good – Elasticity	K1-K5	5	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz
Feb 10– 18, 2025	4	**Unit 4 Calculus – Economics**	K1-K2	3	1-5	Solving problem sums,	Assignment problem,

(Day Order 1 to 4)		**Application** 4.1 Application to elasticity of demand and supply				Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Worksheet, CA, Quiz
Feb 19- 26, 2025 (Day Order 1-6)	4	4.2 Relationship between total, marginal and average revenue functions-Derivation and sums 4.3 Relationship between AC and MC- Derivation and sums	K1-K3 K1-K4	5	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz
Feb 27- Mar 6, 2025 (Day Order 1 to 6)	4 5	4.4 Application to AC, MC, MR, MP with two inputs factors. 5.1 Increasing and Decreasing functions, interpretation of slope as the first derivative	K1-K4	5	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz
Mar 7 – 11, 2025 (Day Order 1 to 3)	5	5.2 Concave – Convex functions – interpretation of second order derivative – Nature of the curve	K1-K4	2	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz

Mar 12 –17, 2025	**C.A. Test - II**							
Mar 18 – 20, 2025 (Day 4 to 6)	5	5.3 Unconstrained maxima and minima with single explanatory variable	K1-K5	2	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz
Mar 21 - 28, 2025 (Day Order 1 to 6)	5	5.4 Application to cost minimization, revenue maximization	K1-K5	5	1-5	Solving problem sums, Assignment, Worksheet, Peer teaching and group discussion, Solving HOTS questions	Assignment problem, Worksheet, CA, Quiz
Mar 29- April 2, 2025 (Day Order 1 to 3)	**REVISION**							