STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (November 2024 – April 2025)

Department : **Mathematics**

Name/s of the Faculty : **Dr. Arputha Christy K**

Course Title : **INTEGRAL CALCULUS**

Course Code : **23MT/MC/IC23**

Shift : **II**

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	recall and reproduce various integration techniques	K1
CO2	understand the concept of multiple and improper integrals	K2
CO3	employ various techniques in evaluating multiple integrals	K3
CO4	analyse and explain the results of multiple integral through illustrations with examples	K4
CO5	predict appropriate methods to find the solution of problems on integral calculus	K5

Week	**Unit No.**	**Content**	**Cognitive Level**	**Teaching Hours**	**COs**	**Teaching Learning Methodology**	**Assessment Methods**
Nov 18 – 25, 2024 (Day Order 1-6)	I	**Methods of Integration** 1.1 Integration of irrational functions of the type: $\frac{1}{(x-k)\sqrt{ax^2+bx+c}}$, $\frac{1}{(Ax^2+B)\sqrt{Cx^2+D}}$,	K1-K5	4	CO1-5	Problem Solving and Group Work	Quiz and Slip Test
Nov 26- Dec 3, 2024 (Day Order 1 to 6)	I	1.1 Integration of irrational functions of the type: $\frac{1}{(ax^2+bx+c)\sqrt{Ax^2+Bx+}}$ $\sqrt{(x-\alpha)(\beta-x)}$, $\frac{1}{\sqrt{(x-\alpha)(\beta-x)}}$, $\sqrt{\frac{x-\alpha}{\beta-x}}$	K1-K5	4	CO1-5	Problem Solving and Group Work	Quiz and Slip Test
Dec 4-11, 2024 (Day Order 1 to 6)	I	1.2 Integration of functions of type: $\frac{1}{a+b\cos x}$, $\frac{1}{\sqrt{a^2\cos^2 x+b^2\sin^2 x}}$	K1-K5	3	CO1-5	Problem Solving and Group Work	Quiz and Slip Test

	II	**Improper Integrals** 2.1 Infinite Integrals	K1-K5	1	CO1-5	Problem Solving and Group Work	Problem Solving and Group Work
Dec 12-19, 2024 (Day Order 1 to 6)	II	2.1 Infinite Integrals 2.2 Discontinous Integrands	K1-K5	4	CO1-5	Problem Solving and Group Work	Quiz and Slip Test
Dec 20, 2024 (Day Order 1)	NO CLASS						
Jan 3 – 7, 2025 (Day Order 3 to 6)	II III	2.2 Discontinous Integrands 2.3 Comparison Test **Double Integrals** 3.1 Iterated Integrals	K1-K5	4	CO1-5	Problem Solving and Group Work	Quiz and Slip Test
Jan 8 – 17, 2024 (Day Order 1 to 6)	III	3.2 Double Integrals over General Regions	K1-K5	4	CO1-5	Problem Solving and Group Work	Quiz and Slip Test
Jan 18 - 23, 2025	C.A. Test – I – Unit I and II						
Jan 24 -31, 2025 (Day Order 1 to 6)	III	3.3 Double Integrals in Polar Coordinates	K1-K5	4	CO1-5	Problem Solving and Group Work	Quiz and Slip Test
Feb 3-8, 2025 (Day Order 1 to 6)	III	3.4 Surface Area using Double Integrals	K1-K5	4	CO1-5	Problem Solving and Group Work	Quiz and Slip Test

	IV	**Triple Integrals** 4.1 Triple Integrals					
Feb 10– 18, 2025 (Day Order 1 to 4)	IV	4.2 Applications of Triple Integrals	K1-K5	4	CO1-5	Problem Solving and Group Work	**III Component Test Part I** Problem test on assignment - 25 marks
Feb 19- 26, 2025 (Day Order 1-6)	IV	4.3 Change of Variable in Double and Triple Integral	K1-K5	4	CO1-5	Problem Solving and Group Work	Quiz and Slip Test
Feb 27- Mar 6, 2025 (Day Order 1 to 6)	IV V	4.3 Change of Variable in Double and Triple Integral **Beta and Gamma Integrals** 5.1 Definitions of Beta and Gamma Integrals	K1-K5	4	CO1-5	Problem Solving and Group Work	Quiz and Slip Test
Mar 7 – 11, 2025 (Day Order 1 to 3)	V	5.2 Recurrence Formula for Gamma Functions	K1-K5	1	CO1-5	Problem Solving and Group Work	**III Component Test Part II** – Unit V, Problem test 25 marks
Mar 12 –17, 2025	**C.A. Test - II**						

Mar 18 – 20, 2025 (Day 4 to 6)	V	5.2 Recurrence Formula for Gamma Functions 5.3 Properties of Beta Functions	K1-K5	3	CO1-5	Problem Solving and Group Work	Quiz and Slip Test
Mar 21 - 28, 2025 (Day Order 1 to 6)	V	5.4 Relation between Beta and Gamma Functions	K1-K5	4	CO1-5	Problem Solving and Group Work	Quiz and Slip Test
Mar 29- April 2, 2025 (Day Order 1 to 3)	**REVISION**						

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