

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

Department : Mathematics
Name/s of the Faculty : Dr. P. Subbulakshmi
Course Title : Algebra and Trigonometry
Course Code : 23MT/MC/AT13
Shift : II

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	Recall the fundamental notions of Algebra, Trigonometry and the various series expansions	K1
CO2	Interpret the acquired knowledge and use it for expressing algebraic equations, categorizing trigonometric problems and to estimate the roots of the equations	K2
CO3	Apply the concepts of equations, series categorization and the relation between trigonometric functions to solve relevant problems	K3
CO4	Analyze the types of Eigenvectors and its applications, to estimate the sum of infinite series and to illustrate the occurrence of roots and approximation of limits	K4
CO5	Evaluate higher order equations to predict their roots and to experiment on similar matrices for the diagonalization process, validate the trigonometric formulas using suitable examples	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 24 – 26, 2024 (Day Order 4 - 6)	1	Theory of Equations 1.1 Relations between the Roots and Coefficients of Equations involving cubic and higher order 1.2 Symmetric Function of Roots	K1-K5	2	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1	Theory of Equations 1.3 Transformation of Equations 1.4 Increase or Decrease the Roots of a Given Equation by a Given Quantity	K1-K5	4	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem Solving
July 5 – 12, 2024 (Day Order 1 - 6)	1 2	Theory of Equations 1.5 Removal of terms Series Expansions 2.1 Exponential series	K1-K5	4	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Third Component Test – I [10 marks] (Unit 1 – 1.1 to 1.3)
July 15 – 23, 2024 (Day Order 1 - 6)	2	Series Expansions 2.2 Logarithmic series	K1-K5	4	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem Solving
July 24 – 31, 2024 (Day Order 1 - 6)	2	Series Expansions 2.2 Logarithmic series	K1-K5	4	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning
Aug 1 – 5, 2024 (Day Order 1 - 3)	2	Series Expansions 2.3 Application of exponential and logarithmic series	K1-K5	2	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Assignments

Aug 6 – 10, 2024	C.A. Test – I (Unit 1 – 1.3 to 1.5, Unit 2 – 2.1, 2.2)						
Aug 12 – 14, 2024 (Day Order 4-6)	2	Series Expansions 2.3 Application of exponential and logarithmic series	K1-K5	2	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Presentations
Aug 16 – 23, 2024 (Day Order 1-6)	3	Properties of Matrices 3.1 Eigenvalues and Eigenvectors 3.2 Cayley - Hamilton Theorem	K1-K5	4	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Quiz
Aug 27 – Sep 3, 2024 (Day Order 1-6)	3	Properties of Matrices 3.3 Similar Matrices 3.4 Diagonalization of a Matrix	K1-K5	4	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Third Component Test – II [20 marks] (Unit 3 – 3.1, 3.2)
Sep 4 – 11, 2024 (Day Order 1-6)	4	Trigonometry 4.1 Expansions of $\cos n\theta$, $\sin n\theta$ and $\tan n\theta$	K1-K5	4	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Assignments
Sep 12 - 20, 2024 (Day Order 1-6)	4	Trigonometry 4.2 Expansions of $\cos^n\theta$ and $\sin^n\theta$ in a series of sines and cosines of multiples of θ .	K1-K5	4	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem Solving
Sep 23 - 26, 2024 (Day Order 1-4)	4	Trigonometry 4.3 Expansions of $\cos \theta$ and $\sin \theta$ in Powers of θ	K1-K5	2	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Problem Solving
Sep 27 – Oct 3, 2024	C.A. Test – II (Unit 3 – 3.3, 3.4, Unit 4 – fully)						
Oct 4 – 5, 2024 (Day 5 & 6)	5	Trigonometry (contd.) 5.1 Euler's Formula for $e^{i\theta}$ 5.2 Hyperbolic Functions	K1-K5	2	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning

Oct 7 - 15, 2024 (Day Order 1 to 6)	5	Trigonometry (contd.) 5.3 Relations between Circular and Hyperbolic Functions	K1-K5	4	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Third Component Test – III [20 marks] (Unit 5 – 5.1 to 5.3)
Oct 16 - 22, 2024 (Day Order 1 to 6)	5	Trigonometry (contd.) 5.4 Inverse Hyperbolic Functions in Terms of Logarithmic Functions	K1-K5	4	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION						