STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule: November 2023 - April 2024

Department : MATHEMATICS

Name/s of the Faculty : DR.ARUL ROSELET MERYLINE S

Course Title : VECTOR SPACES AND LINEAR TRANSFORMATIONS

Course Code : 19MT/MC/VL64

Shift : II

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Nov 22 – 23, 2023 (Day Order 1 & 2) (2 hours)	**Unit 1** **Vector Spaces** 1.1 General Vector Spacesand Subspaces	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Questioning
Nov 24-30, 2023 (Day Order 1 to 6) (5 hours)	**Unit 1** **Vector Spaces** 1.1 General Vector Spacesand Subspaces 1.2 Linear Combinations	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Questioning
Dec 1-7, 2023 (Day Order 1 to 6) (5 hours)	**Unit 1** **Vector Spaces** 1.3 Linear Dependence and Independence 1.4 Properties of Bases	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Questioning
Dec 8-9, 2023 (Day Order 1, 3) (1 hour)	**Unit 2** **Vector Spaces (contd.)** 2.1 Rank	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	
Dec 11-15, 2023 (Day Order 2 to 6) (4 hours)	**Unit 2** **Vector Spaces (contd.)** 2.2 Orthonormal Vectors and Projections	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Questioning &III Component Test-1 based on Assignment problems in unit 1
Dec 16 – 22, 2023	**Unit 2** **Vector Spaces (contd.)**	Lecture	Williams Gareth, Linear Algebra with	Questioning

(Day Order 1 to 6) (5 hours)	2.3 Gram-Schmidt Orthogonalization Process		Applications 6 th Edition. New Delhi: Narosa, 2008.	
Jan 3 – 6, 2024 (Day Order 1 to 4) (3 hours)	**Unit 2** **Vector Spaces (contd.)** 2.4 Kernel, Range and the Rank-Nullity Theorem	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Quiz
Jan 8 – 12, 2024	**C.A. Test – I** **(Units 1 & 2)**			
Jan 13, 2024 (Day Order 1) (1 hour)	**Unit 3** **Transformations** 3.1 Matrix Transformations, Rotations and Dilations	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Questioning
Jan 18 -20, 2024 (Day Order 4 to 6) (3 hours)	**Unit 3** **Transformations** 3.2 One-to-One Transformations and InverseTransformations	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Questioning
Jan 22-29, 2024 (Day Order 1 to 6) (5 hours)	**Unit 3** **Transformations** 3.3 Transformations and Systems of Linear **Unit 4** **Coordinate Representations** 4.1 Coordinate Vectors Change of Basis	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Quiz
Jan 30 – Feb 2, 2024 (Day Order 1 to 4) (3 hours)	**Unit 4** **Coordinate Representations** 4.3 Matrix Representations of Linear Transformations	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	III Component Test-2 MCQ (unit 3)
Feb 3, 2024 (Day Order 2) (2 hours)	**Unit 4** **Coordinate Representations** 4.4 Importance of Matrix Representation	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Quiz
Feb 5- 6, 2024 (Day Order 5 to 6)	**Unit 4** **Coordinate Representations** 4.5 Diagonalization of Matrices	Lecture	Williams Gareth, Linear Algebra with Applications 6 th	Questioning

(2 hours)			Edition. New Delhi: Narosa, 2008.	
Feb 7 – 14, 2024 (Day Order 1 to 6) (5 hours)	**Unit 4** **Coordinate Representations** 4.6 Diagonalization of Matrices (contd.) 4.7 Diagonalization of Symmetric Matrices - Orthogonal Diagonalization	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Questioning
Feb 15 – 22, 2024 (Day Order 1 to 6) (5 hours)	**Unit 5** **Unit 4** **Coordinate Representations** 4.8 Diagonalization of Symmetric Matrices - Orthogonal Diagonalization (contd.)	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Problem solving
Feb 23 – 24, 2024 (Day Order 1 & 5) (4 hours)	**Unit 4** **Coordinate Representations** 4.7 Diagonal Matrix Representation of a Linear	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Questioning
Feb 26 – Mar 1, 2024 (Day Order 2 to 6) (4 hours)	**Unit 5** **Inner Product Spaces** 5.1 Inner Product 5.2 Norm of a Vector	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Problem solving
Mar 2, 2024 (Day Order 1) (1 hour)	**Unit 5** **Inner Product Spaces** 5.3 Orthogonal Vectors	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	Problem solving
Mar 4 –8, 2024	**C.A. Test – II** **(Units 3 &4)**			
Mar 9 – 16, 2024 (Day 6 & Day Order 1 to 6) (5 hours)	**Unit 5** **Inner Product Spaces** 5.4 Approximation of Functions and Coding Theory 5.5 Least Squares Curves	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi: Narosa, 2008.	III Component Test-3 (Part of unit 5)
Mar 18 - 19, 2024 (Day Order 2 to 3) (1 hour)	**Unit 5** **Inner Product Spaces** 5.5 Least Squares Curves	Lecture	Williams Gareth, Linear Algebra with Applications 6 th Edition. New Delhi:	Questioning

			Narosa, 2008.	
Mar 20-22, 2024 (Day Order 4 to 6)	**REVISION**			