



University of Kerala

Discipline	Mathematics				
Course Code	UK1DSCMAT110				
Course Title	Matrices and Linear Equations				
Type of Course	DSC				
Semester	I				
Academic Level	100-199				
Course Details	Credit	Lecture per week	Tutorial per week	Practical	Total Hours per week
	4	4	-	-	4
Pre-requisites	Matrices				
Course Summary	This is a brief introductory course on matrices and system of linear equations				

Detailed Syllabus

Module	Unit	Contents	Hrs
I		System of linear equations and matrices	10
	1	Introduction to Systems of Linear Equations, Gaussian Elimination, Matrices and Matrix Operations, Inverses; Algebraic Properties of Matrices, [Section 1.1 to 1.4 of the Text]	
II		Further properties of matrices	15
	2	Elementary matrices and method for finding inverse, more on linear systems and invertible matrices, diagonal, triangular and symmetric matrices, matrix transformations [Section 1.5 to 1.8 of the Text]	
III		Determinants	15
	3	Determinants by cofactor expansion, evaluating determinants by row reduction, properties of determinants, Cramer's rule	

Module	Unit	Contents	Hrs
IV		Euclidean vector spaces	20
	4	Vectors in 2 space, 3 space and n-space, Norm, dot product, and distance in R^n , Orthogonality, the geometry of linear systems, cross product	

Textbook

1. H Anton, C Rorres. Elementary linear algebra, 11th Edition, John Wiley & Sons.

References

1. David Poole, Linear Algebra, a modern introduction, Brooks/Cole Cengage learning
2. Lee W. Johnson, R. Deanriess, Jimmy T. Arnold, Introduction to Linear Algebra, 5th edition, Addison Wisely

Course Outcomes

CO No.	Upon completion of the course the graduate will be able to	PO/PSO	Cognitive Level	Knowledge Category	Lecture(L) Tutorial (T)	Assignment (As)
CO 1	Understands system of linear equations	PSO1, 2, PO1	U	F,C	L,T	
CO 2	Perform various operations on matrices and determinants	PSO2, PO3, 4	An	F	L,T	
CO 3	Understand the concept of vectors in Euclidean spaces	PSO1, 3, PO2, 3	U,An	C	L,T	
CO 4	Apply matrices to solve system of linear equations	PSO1, 3	Ap	C	L,T	

(R-Remember, U-Understand, Ap-Apply, An-Analyse, E-Evaluate, C-Create)

(F-Factual, C-Conceptual, P-Procedural, M-Metacognitive)

Mapping of CO with PSOs and POs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	1					3							
CO2		2							1	3				
CO3	2		3					2	2					
CO4	2		3											

(- -Nil, 1-Slightly/Low, 2-Moderate/Medium, 3-Substantial/High)

Assessment Rubrics

- Quiz/Assignment/Discussion/Seminar
- Midterm Exam
- Programming Assignments
- Final Exam

Mapping of COs to Assessment Rubrics

	Internal Examination	Assignment	Project Evaluation	End Semester Exam
CO1	✓			
CO2	✓			
CO3	✓			
CO4	✓			✓