

Lesson Plan

Name of the Teacher: Natasha
Class: B.Sc. III
Session: Jan-June 2024
Internal Marks: 10

Subject: Linear Algebra
Semester: VI
External Marks: 40

Course Objectives

1. To introduce the students about the basic knowledge of the vector spaces and Linear transformation.

Course Outcome

At the end of the course, students will be able to:

1. Understand the concept of vector spaces and subspaces.
2. Will be able to relate the concept of vector spaces with the group & rings studied in earlier classes.
3. Will be able to use matrix in the detection of independency of vectors and relate with the linear transformation.

Month	Tentative Dates	Topic
January	01.01.24 to 06.01.24	Vector spaces, subspaces, Sum and Direct sum of subspaces
	8.01.24 to 13.01.24	Linear span, Linearly Independent and dependent subsets of a vector space
	15.01.24 to 20.01.24	Finitely generated vector space, Existence theorem for basis of a finitely generated vector space
	22.01.2024 to 27.01.2024	Finite dimensional vector spaces, Invariance of the number of elements of bases set
	29.01.2024 to 31.01.2024	Dimensions, Quotient space and its dimension + Assignment
February	01.02.24 to 10.02.24	Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector space
	12.02.24 to 17.02.24	Vector space of all the linear transformations Dual Spaces, Bi-dual spaces, annihilator of subspaces of finite dimensional vector spaces,
	19.02.24 to 24.02.24	Null Space, Range space of a linear transformation, Rank and Nullity Theorem
	26.02.24 to 29.02.24	Test and Assignment
March	01.03.24 to 09.03.24	Algebra of Linear Transformation, Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations
	11.03.24 to 16.03.24	Eigen values and Eigen vectors of linear transformations.
	18.03.24 to 22.03.24	Matrix of a linear Transformation, Change of basis,
	25.03.24 to 31.03.24	Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements,
April	01.04.24 to 06.04.24	Orthogonal sets and Basis, Bessel's inequality for finite dimensional vector spaces, Gram-Schmidt,
	08.04.24 to 13.04.24	Orthogonalization process, Adjoint of a linear transformation and its properties,
	15.04.24 to 20.04.24	Unitary linear transformations
	22.04.2024 to 30.04.2024	Revision and Test

Teacher's Signature

Head/Coordinator Signature