CURRICULAM PLAN OF Dr. VARSHA

FOR EVEN SEMESTER 2024-25

B.Sc. (H) PHYSICS (IIND YEAR)

PAPER-DSE- Mathematical Physics-IV (2223012003)

**LEARNING OBJECTIVES**

The objective of the course is to impart the concept of generalized mathematical constructs in terms of algebraic structures mainly vector spaces. Linear algebra studies linear vector spaces, linear transformations, and the matrices and is an important mathematical tool with applications in physics, engineering, machine learning, economics and even life sciences and social sciences. This course is intended to provide a solid foundation in linear algebra as used by physicists and has direct applications in classical and quantum mechanics.

**LEARNING OUTCOMES**

After completing this course, students will be able to,

• Understand algebraic structures in n-dimension and basic properties of the linear vector spaces.

• Understand the concept of dual spaces and inner product spaces.

• Represent linear transformations as matrices and understand basic properties of matrices.

• Determine the eigenvalues and eigenvectors of matrices and diagonalise the matrices.

• Determine orthogonal basis for a vector space using Gram-Schmidt procedure.