

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
CHOICE BASED CREDIT SYSTEM (w.e.f. 2016-17)
SECOND YEAR B.Sc. MATHEMATICS
SEMESTER-IV
CORE COURSE-V: LINEAR ALGEBRA (w. e. f. 2021-2022)

UNIT – I (12 Hours) Vector Spaces-I: Vector Spaces, General properties of vector spaces, n - dimensional Vectors, addition and scalar multiplication of Vectors, internal and external composition, Null space, Vector subspaces, Algebra of subspaces, Linear Sum of two subspaces, linear combination of Vectors, Linear span Linear independence and Linear dependence of Vectors.

UNIT –II (12 Hours) Vector Spaces-II: Basis of Vector space, Finite dimensional Vector spaces, basis extension, co-ordinates, Dimension of a Vector space, Dimension of a subspace, Quotientspace and Dimension of Quotient space.

UNIT –III (12 Hours) Linear Transformations: Linear transformations, linear operators, Properties of L.T, sum and product of LTs, Algebra of Linear Operators, Range and null space of linear transformation, Rank and Nullity of linear transformations – Rank – Nullity Theorem. Applications of Rank Nullity Theorem

UNIT –IV (12 Hours) Matrix: Rank of Matrix, Test for consistency of Linear Equations, Characteristic equations, Characteristic Values & Vectors of square matrix, Cayley – Hamilton Theorem.

UNIT –V (12 Hours) Inner product space : Inner product spaces, Euclidean and unitary space Norm or length of a Vector, Schwartz inequality, Triangle Inequality, Parallelogram law, Orthogonality, Orthonormal set, complete orthonormal set, Gram – Schmidt orthogonalisation process.

Co-Curricular Activities(15 Hours): Seminar/ Quiz/ Assignments/ Linear algebra and its applications / Problem Solving
