MG- Mathematics- Graph Theory and Linear Algebra

4.5 Connectivity and Separability

Unit-5: Matrices and System of Linear Equations

5.1.Row echelon form of a matrix, reduced row echelon form of a matrix.

5.2Definition of rank of a matrix using row echelon or row reduced echelon form.

5.3 System of linear equations- Introduction, matrix form of linear system, definition of row equivalent matrices.

5.4 Consistency of homogeneous and non-homogeneous system of linear equations using rank, condition for consistency.

5.5 Solution of System of Equations: Gauss elimination and Gauss-Jordan elimination method, examples.

Unit-6: Vector Spaces-I

6.1 Definition and Examples.

6.2 Subspaces.

6.3 Linear Dependence and Independence

6.4 Basis of Vector Space

Unit-7: Vector Spaces-II

7.1 Dimension of a Vector Space.

7.2 Row, Column and Null Space of a matrix.

7.3 Rank and nullity.

Unit-8: Linear Transformations

8.1 Definition and Examples, Properties, Equality.

8.2 Kernel and range of a linear Transformation

8.3 Rank-Nullity theorem.

8.4 Composite and Inverse Transformation.

8.5 Matrices and Linear Transformation.

8.6 Basic Matrix Transformations in R^2 and R^3

8.7 Linear Isomorphism.