SYLLABUS

LINEAR ALGEBRA

(SEMESTER-VI)

Paper-II :

Time : 3 Hours **Max. Marks : 30**

Note : 1. The syllabus has been split into two Units : Unit-I and Unit-II. Four questions will be set from each Unit.

2. A student will be asked to attempt five questions in all selecting at least two questions from each Unit. Each question will carry 6 marks.

3. The teaching time shall be five periods (45 minutes each) per paper per week including tutorial.

4. If internal assessment is to be conducted in the form of written examinations, then there will be only one written examination in a Semester.

UNIT-I

Vector Space : Definition and Examples of Vector Spaces, Subspaces, Algebra of subspaces, Linear span, Linear dependence and independence of vectors, Basis and Dimension of a vector space, Basis and dimension of subspace, Direct sums and complements.

Linear Transformations, Rank and Nullity of a linear transformation, Vector space of linear transformations.

UNIT-II

Linear transformation and matrices, Change of basis.

Characteristic roots and characteristic vectors, Algebraic and Geometric multiplicity of a characteristic value, Cayley-Hamilton theorem, Diagonalizable operators and matrices. Minimal polynomial of a linear operator (matrix).