

**Course: Minor  
Linear Algebra**

<b>Semester: II</b>	<b>Credits:2</b>	<b>Subject Code: BSMINMAT22301</b>	<b>Lectures: 30</b>
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**Course Outcomes**

At the end of this course, the learner will be able to:

- CO1: Define Vector Spaces and related properties
- CO2: Describe Linear Transformation and related terms.
- CO3: Identify matrix is diagonalizable or not.
- CO4: Find orthogonal and orthonormal vectors.

**Unit 1: Vector Space**

**15**

- Vector Spaces and Subspaces
- Introduction to Linear Transformations
- The Matrix of a Linear Transformation
- Null Spaces, Column Spaces, and Linear Transformations
- Linearly Independent Sets; Bases
- Coordinate Systems
- The Dimension of a Vector Space
- Rank
- Change of Basis
- Assignment

**Unit 2: Eigen values and Eigenvectors**

**15**

- Eigenvectors and Eigenvalues
- The Characteristic Equation
- Diagonalization
- Eigenvectors and Linear Transformations
- Inner Product, Length, and Orthogonality
- Orthogonal Sets and orthonormal sets
- Orthogonal Projections
- The Gram–Schmidt Process
- Assignment

**Recommended Text Books:**

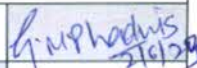
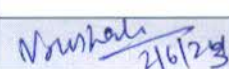
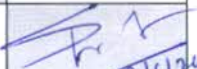

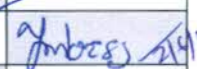
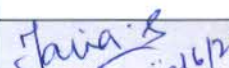

- David C. Lay, Steven R. Lay Judi J.Mc Donald *Linear Algebra and its Application*, Pearson Publication, Fifth Edition, 2016.




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**Reference Books:**

- Gilbert Strang, *Introduction to Linear Algebra*, Wellesley- Cambridge Press, Fifth Edition
- Howard Anton, *Elementary Linear Algebra with supplemental Applications*, Wiley Student Edition, Fourth edition.

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