



[Summary]

Vector Spaces and Matrices

Subject:	Business Economics
Course:	B. A. (Hons.), 2nd Semester, Undergraduate
Paper No. & Title:	Paper – 202 Mathematics for Business Economics
Unit No. & Title:	Unit – 4 Linear Algebra
Lecture No. & Title:	Lecture – 1 Vector Spaces and Matrices

Summary

We here start with the definitions of addition of two elements of \mathbb{R}^n and also of scalar multiplication. We then list down important properties of these operations, which are at the root basis of the abstract i.e. axiomatic definition of Vector Space or Linear Space. We also convey geometric representation of vectors and the interpretation of vector addition and scalar multiplication. Then after, we cover with examples, the notions of linear combination, linear independence, linear dependence, linear span and basis. We also discuss Scalar product and orthogonality. Lastly we introduce Matrices with motivation from simultaneous equations. Operations of addition, multiplication were discussed with care. We also discuss symmetric, orthogonal and idempotent matrices.