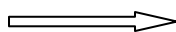# M.A/M.Sc Mathematics Semester 3rd

Effective from academic session 2011 ══════⟶ **Repetition for 2012 with minor change**

ADVANCED TOPICS IN LINEAR ALGEBRA

Course No. MM-CP-309

UNIT-I

Tensor product of vector spaces, isomorphism of Hom(V,W) with V* tensor W, tensor algebra, symmetric algebra,

UNIT-II

Exterior algebra of a vector space with their universal properties, structure of bilinear forms, symmetric and alternating forms, orthogonal transformations, reflections.

UNIT-III

Hermitian forms, classical groups associated to Symmetric   and Alternating bilinear forms as isometry groups (namely, SO(V,Q), O(V,Q), Sp(V,Q))

UNIT-IV

Spectral theorem, Pfaffian, Witt's Cancellation and Extension theorem for quadratic spaces (without proof). Theorem of Cartan-Dieudonne on orthogonal transformations.

Recommended Books:

1.S.Lang, Introduction to Linear Algebra, Springer Verlag (1987).