Course Title: Advanced Linear Algebra	**Number of Units: 1**
SSD: MAT03	**CFU : 6**
Course aims: To provide students with a good understanding of the concepts and methods of advanced linear algebra aimed at solving engineering problems.	
Course Description: Symmetric bilinear and hermitian forms. Diagonalization of symmetric bilinear forms and Gauss algorithm. Sylvester's theorem. Tensor products of vector spaces. Symmetric tensors. Orthonormal bases and Gram-Schmidt process. Normal matrices. Spectral theorem. Projectors and spectral decomposition of Normal matrices. Hadamard's inequality. Gram matrices. Singular Value Decomposition. Matrix norms. Spectral norm. Exponential of a matrix. Dynamic mode decomposition of a linear system. Polar decomposition and Classical groups. LU, Choleski and QR factorizations.	
Assumed Background: Linear Algebra at undergraduate level	
Assessment methods: Oral examination.	