Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
ING254	Advanced Mathematics II	4	2	1	0	2.5	5

Prerequisites	
Admission Requirements	

Language of Instruction	French
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	-
Content	-
References	

Theory Topics

Week	Weekly Contents
1	Bilinear forms and inner product
2	Pre-Hilbert spaces and Euclidean spaces
3	Orthonormal bases for an inner product, Gram–Schmidt orthonormalization process
4	Orthogonal complement of a vector subspace and projection
5	Orthogonal projection theorem
6	Applications: least squares, approximation of a periodic function
7	Diagonalization of symmetric matrices
8	Midterm exam
9	Norms on a vector space, equivalence of norms in finite dimensions
10	Continuity of a function of several variables
11	Partial derivatives and the differential of a multivariable function
12	Curves and surfaces: level curves, gradient vector, and tangent plane
13	Minimum and maximum of a multivariable function
14	Final exam