LINMA2171
2010-2011

Numerical Analysis : Approximation, Interpolation, Integration

5.0 credits	30.0 h + 22.5 h	1q

Teacher(s) :	Magnus Alphonse ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	- Approximation of functions by polynomials: Chebyshev (best approximation, polynomial series), L2 norm (best average approximation, orthogonal polynomial series, Fourier series). - Interpolation of functions divided by polynomials: Lagrange and Newton formulas, divided differences, iterative methods of Neville, formulas of finished differences. - Numerical integration: Gaussian methods, formulas of finished differences. - Error estimation and applications: Peano theorem, Euler-Maclaurin formula, extrapolation to the limit (Romberg scheme, etc.) Modalities of organisation: exercises: in class, in relation with the material seen. This activity will receive a grade that will come into play in the final points. Exam: oral on the material seen in class (closed book), partially with written preparation.
Aims :	In-depth analysis of diverse methods and algorithms representative in the matter of numerical resolution by computers of significant classes of scientific or technical problems, in relation with the themes underlying the applied mathematics *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Content :	See at the following address : http://www.math.ucl.ac.be/~magnus/num1a/m2171to.txt
Other infos :	See at the following address : http://www.math.ucl.ac.be/~magnus/num1a/m2171to.txt
Cycle and year of study :	> Bachelor in Mathematics > Master [120] in Mathematical Engineering > Master [120] in Statistics: General > Master [120] in Physics
Faculty or entity in charge:	MAP