UCL Université catholique de Louvain

LMAT1151

2010-2011

Numerical analysis : tools and software of calculus

7.0 credits	30.0 h + 45.0 h	2q

Teacher(s) :	Bieliavsky Pierre ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	Theory of errors in numerical analysis, direct and iterative methods of resolutions of linear systems numerical resolutions of non-linear systems, numerical integration and numerical resolution of ordinary differential equations. Part of the exercices will be devoted to the knowledge of a particular software in numerical analysis. This activity will lead to a project consisting into the numerical resolution of a specific problem. This course gives also the opportunity to give numerical solutions to problems met in the other courses.
Aims :	Besides the construction of numerical methods starting from basic principles, the course will present an introduction to the theory of errors and the evaluation of efficiency of the algorithms presented. This should lead the student to be able to use programs and software used in numerical computations. *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 :	The following subjects will be considered : calculus of errors, the direct and iterative methods of resolutions of linear systems, the numerical resolution of non-linear systems, the numerical integration and the numerical resolution of ordinary differential equations
Cycle and year of study :	> Bachelor in Mathematics > Bachelor in Physics
Faculty or entity in charge:	MATH