LPHY2371

2016-2017

Numerical Simulation in Physics

5.0 credits	22.5 h + 37.5 h	1q

Teacher(s) :	Piraux Bernard ; Crucifix Michel ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	Initiation to numerical simulation in physics through two types of problems: 1. Differential equation resolution to partial derivatives by tbhe method of finished differences or with the help of spectral methods ; 2. The numerical simulations of the Monte Carlo type.
Aims :	To offer to students the possibility to acquire a first experience in numerical simulation in the problems belonging to the physical sciences field. Since they must acquire experience, emphasis is put on computer exercises, that allow the confrontation to multiples problems brought up by the installation of a numerical simulation software and the necessity to completely resolve the problem - meaning without limiting oneself to throwing the bases of resolutions. The study of different methods of numerical simulation is mainly through several examples coming from diverse domains of physics. *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".*
Other infos :	Prerequisites: basics in computer science. Knowledge of one programming language (C++, PASCAL or FORTRA) and notions of operating system, preferably UNIX or LINUX. Basics in numerical analysis.
Faculty or entity in charge:	PHYS

Programmes / formations proposant cette unité d'enseignement (UE)

Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Minor in Physics	LPHYS100I	5	-	🔍
Master [120] in Physics	PHYS2M	5	-	🔍
Additionnal module in Physics	LPHYS100P	5	-	🔍
Master [120] in Physical Engineering	FYAP2M	5	-	🔍