



5.0 credits	30.0 h + 22.5 h	2q
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Teacher(s) :	Absil Pierre-Antoine (coordinator) ; Papavasiliou Anthony ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Prerequisites :	Basic training in numerical methods and programming (level of LFSAB1104).
Main themes :	-- Numerical software in C++ and Python -- Parallel computing -- Numerical methods for partial differential equations
Aims :	Contribution of the course to the program objectives (Nr) : -- AA1.1, AA1.2, AA1.3 -- AA2.2, AA2.3, AA2.4 -- AA3.2 -- AA6.1, AA6.3 After successful completion of this course, the student will be able to: -- Write, modify and use numerical software in C++ and Python; -- Write, modify and use scientific software for partial differential equations; -- Employ parallel programming techniques Transversal learning outcomes : -- Use a reference book in English; -- Use programming languages for scientific computing; -- Release software along with suitable user documentation. <i>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".</i>
Evaluation methods :	-- Homeworks, exercises, or laboratory work during the course semester -- Exam Clarifications are provided in the course outline (plan de cours) available on Moodle.
Teaching methods :	-- Interactive lectures -- Homework assignments, exercises, or laboratory work under the supervision of the teaching assistants
Content :	-- Programming concepts in C++ and Python -- Numerical software engineering in C++ and Python -- Analysis of partial differential equations -- Finite-difference methods for partial differential equations -- Introduction to parallel computing using MPI --

	Other topics related to the course themes.
Bibliography :	-- Reference books -- Complementary documents posted on Moodle Precisions are given in the course outline (plan de cours) available on Moodle.
Other infos :	The organisation details are given every year in the course plan.
Faculty or entity in charge:	MAP

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in Computer Science and Engineering	INFO2M	5	-	
Master [120] in Computer Science	SINF2M	5	-	
Master [120] in Mathematical Engineering	MAP2M	5	-	