LINMA1315

2015-2016

Mathematical analysis : complements

5.0 credits	30.0 h + 22.5 h	2q

Teacher(s) :	Willem Michel ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	> http://icampus.uclouvain.be/claroline/course/index.php?cid=LINMA1315
Prerequisites :	Calculus and linear algebra.
Main themes :	Metric spaces, Lebesgue integral, normed spaces, Hilbert spaces.
Aims :	AA 1.1, 1.2, 1.3, 3.1, 6.1. At the end of the course, the student will be able to : -- Extend rigorously the intuitive notion of distance to metric spaces and to functional spaces. -- Use correctly the basic theorems on the interchange of limits and integrals, in the framework of Lebesgue theory. -- Apply the elementary spectral theoem. -- Use the basic notions of topology, integration and functional analysis in the following fields : probability, optimization, partial differential equations, mechanics and 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".*
Evaluation methods :	Written examination : theory, exercises and partly original problems. window.parent.CKEDITOR._["contentDomReadyeditionForm:j_idt76:richtext"](window);
Teaching methods :	Lectures with dialoguee, exercises. The main points are critical understanding of the theory and active problem solving.
Content :	-- Metric spaces, continuity, convergence. -- Cauchy integral, Lebesgue integral, multiple integrals, change of variables. -- Normed spaces, continuous linear mappings, Hilbert space, elementary spectral theorem
Bibliography :	M. Willem, « Functional Analysis. Fundamentals and Applications », Birkhauser, 2013. Available on line or in bookstores.
Other infos :	window.parent.CKEDITOR._["contentDomReadyeditionForm:j_idt79:richtext"](window);
Faculty or entity in charge:	MAP

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Minor in Engineering Sciences: Applied Mathematics	LMAP100I	5	-	
Master [120] in Mathematical Engineering	MAP2M	5	-	