LINMA2345

2012-2013

Differential equations

5.0 credits	30.0 h + 22.5 h	2q

Teacher(s) :	Ben-Naoum Abdou Kouider ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	Boundary value problems, periodical problems and some other topics selected by the students.
Aims :	This course treats boundary value problems for linear and nonlinear systems as well as periodical problems. *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 :	Hilbert spaces, Lp spaces and Sobolev spaces ; Notion of strong solutions and weak solutions of boundary value problems ; Variational methods ; Spectral methods ; Bifurcation theory. The students will have the opportunity to go deeper into a topic of their choice and to present it to their colleagues.
Other infos :	Prerequisite : INMA 1315 "Mathematical analysis : complements" Course materials : some chapters of the following books : - Critical Point Theory and Hamiltonian Systems, J. Mawhin et M. Willem, Applied Mathematical Society, 74 Springer Verlag ; - Analyse convexe et problèmes variationnels, I. Ekeland et R. Temmam, Dunod Gauthier-Villars, 1994 ; - A. K. Ben-Naoum et C. Finet, Analyse mathématique, Résumé de cours et exercices corrigés: Espaces de Lebesgue, Espaces de Hilbert et Distributions. De Boeck Université 1999.
Cycle and year of study :	> Master [120] in Electro-mechanical Engineering > Master [120] in Mathematical Engineering > Master [60] in Mathematics > Master [120] in Mathematics
Faculty or entity in charge:	MAP