UCL Université catholique de Louvain

LMAT2440

2010-2011

Number theory

5.0 credits	30.0 h + 15.0 h	1q

Teacher(s) :	Caprace Pierre-Emmanuel ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	Introduction to various aspects of number theory, with an emphasis on applications to cryptography.1. Modular arithmetic : the Chinese remainder theorem and the law of quadratic reciprocity.2. Rational quadratic forms : the field of p-adic numbers and the Hasse local-global principle.3. Analytical number theory : zeta function and the Dirichlet theorem.4. Projective cubics ; arithmetical properties of elliptic curves.The balance between the topics above may vary from one year to another.Teaching style : theoretical talks.
Aims :	This course provides the concepts and methods needed for : - solving equations in rings of modular integers ;- finding conditions for the solvability of some Diophantine equations ;- applying theorems of analysis to the study of prime numbers ;- computing in the group of points of some projective cubics. *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".*
Cycle and year of study :	> Master [120] in Mathematics > Master [60] in Mathematics > Master [120] in Computer Science and Engineering > Master [120] in Mathematical Engineering > Master [120] in Electrical Engineering
Faculty or entity in charge:	MATH