MATH2380   Number theory

[30h] 3 credits

This course is taught in the 1st semester

Teacher(s):	Jean-Jacques Quisquater, Jean-Pierre Tignol
Language:	French
Level:	Second cycle

Aims

The course aims at providing the students with conceptual bases and methods allowing them to
- solve equations in modulo integer rings;
- determine the existence conditions of solutions for certain diophantic equations;
- apply results of a mathematical analysis to the study of prime numbers;
- execute calculations in point groups of certain cubic projections on module integer bodies.

Main themes

Introduction to various aspects of the number theory and its methods, for its particular application to mathematical cryptography.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Prerequisites: elements of linear algebra (first cycle level).
Evaluation: oral examination. The exam consists in the presentation of a personal work developping one aspect of numbers theory and summary questions on the overall of the course.
Support:
- K. Ireland, M. Rosen: A classical introduction to modern number theory, Springer, 2nd edition, 1991;
- J.P. Serre: Cours d'arithmetique, PUF, 1970;
- J.H. Silverman: The arithmetic of elliptic curves, Springer, 1986.

Programmes in which this activity is taught

INFO2	Ingénieur civil informaticien

Other credits in programs

ELEC23	Troisième année du programme conduisant au grade d'ingénieur civil électricien	(3 credits)
GC23	Troisième année du programme conduisant au grade d'ingénieur civil des constructions	(3 credits)
INFO23	Troisième année du programme conduisant au grade d'ingénieur civil informaticien	(3 credits)
MAP21	Première année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(3 credits)
MAP22	Deuxième année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(3 credits)
MAP23	Troisième année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(3 credits)
MATH22/G	Deuxième licence en sciences mathématiques	(3 credits)