Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
MAT365	Number Theory I	5	3	0	0	3	6

Prerequisites	
Admission Requirements	

Language of Instruction	French
Course Type	Elective
Course Level	Bachelor Degree
Objective	This is an introduction to some key concepts of number theory, trying to show the diversity and richness of the approaches (algebraic, analyrtic, combinatorial or geometric) around a detailed presentation of classical results (ex. law of quadratic reciprocity) or quick evocation of unresolved problems (e.g. Goldbach's conjecture, twin primes).
Content	Prime numbers, gcd, lcm, Euclidian algorithm, Bezout's identity, Fermat's little theorem, Gauss's lemma, Wilson's theorem Ring of integers modulo N, primitive roots of unity, Euler indicator,Chinese remainder theroem, RSA algorithm (justification only) Legendre symbol, Jacobi symbol, law of quadratic reciprocity (elementary proof, without of Gauss' sums), sum of two squares
References	- 104 Number theory problems, Titu Andreescu, Dorin Andrica, Zuming Feng, Birkhäuser (2007) : Exercices - Elementary Number Theory: Primes, Congruences and Secrets, William Stein, Springer (2009) : Cours

Theory Topics

Week	Weekly Contents