

Course title: **Introduction to Number Theory**
Institute/Division: Institute of Mathematics, Faculty of Physics, Mathematics and Computer Science

Course code:
Erasmus subject code: 11.1 Mathematics
Number of contact hours: 45 hours
Course duration: 1 semester
ECTS credits: 6
Course description: This is an elective course for undergraduate students in Mathematics and CSc. The emphasis is on applicability of this primarily theoretical area of pure mathematics. Topics covered: Pythagorean Triples and the(information on) Fermat's Last Theorem. Divisibility, GCD, factorization and the Fundamental Theorem of Arithmetic. Congruences, Fermat's Little Theorem, Euler's Phi function. Prime numbers; counting primes, Mersenne and other types of primes. Carmichael numbers. Modular arithmetic and algebra, Chinese Remainder Theorem. Diophantine equations. "Unbreakable" codes and other applications.

Literature: J. Silverman, *A friendly introduction to Number Theory*, Prentice Hall, 1997

Course type: lectures (30 hours), problem sessions (15 hours)
Assessment method: two tests during the semester, final exam
Prerequisites: at least one college level math course
Primary target group: Majors in Computer Science, Mathematics, Physics or Engineering. Junior level.

Lecturer: Katarzyna Pałasińska, PhD
Contact person: Katarzyna Pałasińska, e-mail: kpalasinska@gmail.com
Deadline for application: 15th of September