Title:	**Discrete Mathematics**
Lecture hours:	30
Study period: (summer/winter)	winter or summer
Number of credits:	6
Assessment methods:	classroom assessment; written test
Language of instruction:	English
Prerequisites:	induction, basics of Calculus and Group Theory
Course content:	Counting schemes: permutations, variations, combinations, Stirling numbers, Dirichlet rule; Recurrence; Redfield-Polya's theorem; Euler/Hamilton paths and cycles: Euler's theorem, Ore's theorem, Meyniel's theorem; Planarity: Kuratowski's criterion of planarity; Trees and forests: spanning trees, Kirchhoff and Cayley's formulas; Connectivity: Menger's theorem; Independence and colouring: matchings and covers, Berge's theorem, Hall's theorem, map colouring, Vizing's theorem; Flows in digraphs: Ford-Fulkerson's theorem.
Learning outcomes:	By the end of the course students should know: several (over those elementary) tools in solving combinatorial problems; should be able to: use basic combinatorial and graph theory tools to solve various practical problems.
Name of lecturer:	Dr Piotr Sworowski
Contact (email address):	piotrus@ukw.edu.pl
Literature:	Victor Bryant, Aspects of Combinatorics, Cambridge University Press, 1993 Ronald Graham, Donald Knuth, Oren Patashnik, Concrete Mathematics, Addison-Wesley, 1994 Robin J. Wilson, Introduction to Graph Theory, Longman, 1985 Béla Bollobás, Modern Graph Theory, Springer, Berlin, 1998 Reinhard Diestel, Graph Theory, Springer, Berlin, 2000