

<b>Course title:</b>	<b>Combinatorics</b>
<b>Institute/Division:</b>	Institute of Mathematics, Faculty of Physics, Mathematics and Computer Science
<b>Course code:</b>	
<b>Erasmus subject code:</b>	11.1 Mathematics
<b>Number of contact hours:</b>	45 hours
<b>Course duration:</b>	1 semester
<b>ECTS credits:</b>	6
<b>Course description:</b>	This is an elective course for undergraduate students in Science or Engineering. Recommended to CSc and Mathematics majors. The emphasis is on problem solving and the need of mathematics. Topics covered: multiplication, pigeonhole, inclusion-exclusion principles. Permutations and combinations of sets and multisets, with or without repetitions; derangements and other problems. Binomial and multinomial theorems. Problems leading to recurrence relations. Solving recurrence relations. Generating functions. Some special counting sequences. Games, magic squares and other special topics. Graphs: modeling game strategies with graphs. Coloring and matchings.
<b>Literature:</b>	A. Tucker. <i>Applied Combinatorics</i> , John Wiley and Sons, many editions R. Brualdi, <i>Introductory Combinatorics</i> , Prentice Hall, 1992
<b>Course type:</b>	lectures (30 hours), problem sessions (15 hours)
<b>Assessment method:</b>	two tests during the semester, final exam
<b>Prerequisites:</b>	mathematics maturity; at least one college level math course
<b>Primary target group:</b>	Majors in Computer Science, Mathematics or any area of Science and Engineering, junior level
<b>Lecturer:</b>	Katarzyna Pałasińska, PhD
<b>Contact person:</b>	Katarzyna Pałasińska, e-mail: <a href="mailto:kpalasinska@gmail.com">kpalasinska@gmail.com</a>
<b>Deadline for application:</b>	15th of January