Course title	Knot Theory
Institute/Division	Faculty of Computer Science and Mathematics/ Department of Mathematics
Course code	F-2.KT
Erasmus subject code*	11.1 Mathematics
Number of contact hours**	45 lecture hours (45h)
Course duration	1 semester (Spring)
ECTS credits	6
Course description (max 100 words)	This course offers an elementary introduction to knot theory for undergraduate students in Mathematics, Computer Science, Physics, or Engineering with no prior knowledge of the subject. Topics covered include the elementary knot moves, equivalence of knots, links, regular diagrams, knot tables, fundamental global and local problems of knot theory, the Reidemeister moves, the minimum number of crossing points, the bridge number, the unknotting number, the linking number, the coloring number of a knot, the Alexander polynomial, the Jones polynomial, braids, knots and braids, Alexander's theorem, Markov's theorem, DNA and knots.
Literature	[1] C. C. Adams, The Knot Book, American Mathematical Society, 2004. [2] M. Chiodo, An Introduction to Braid Theory, 2005. [3] P. R. Cromwell, Knots and Links, Dover Publications, 2008. [4] R. H. Crowell & R. Fox, Introduction to Knot Theory, Springer-Verlag, 1977. [5] L. H. Kauffman, Knots and Physics, World Scientific, 1991. [6] L. H. Kauffman, Formal Knot Theory, Dover Publications, 2006. [7] L.H. Kauffman, Introductory Lectures on Knot Theory, WSP, Singapore,2011. [8] A. Kawauchi, A Survey of Knot Theory, Birkhauser Verlag, 1996. [9] W.B.R. Lickorish, An Introduction to Knot Theory, Springer-Verlag, 2012. [10] C. Livingston, Knot Theory, Mathematical Association of America Textbooks, 1996. [11] V. Manturov, Knot Theory, Chapman & Hall/CRC, 2004. [12] D. Rolfsen, Knots and Links, American Mathematical Society, 2003.
Course type/organization	• Lectures (30h), • Exercises (15h).
Assessment method	Project presentations and a final exam.
Prerequisites	The course requires the completion of at least one college-level math course.
Primary target group	Majors in Computer Science, Mathematics, Physics, or Engineering.
Contact person	Maciej Zakarczemny, e-mail: mzakarczemny@pk.edu.pl
Remarks	-

*please insert one of the following codes:
11.0 Mathematics, Informatics
11.1 Mathematics
11.2 Statistics
11.3 Informatics, Computer Science
11.4 Artificial Intelligence
11.5 Actuarial Science
11.9 Others Mathematics, Informatics

**1 lecture hour=45 minutes