		STUDY MODULE D	ESCRIPTION FORM	
	the module/subject	s and mathematical basi	-	^{ode})10342611010347256
Discrete mathematics and mathematical basics of computer 1 Field of study Profile of study				Year /Semester
	ematics		(general academic, practical) (brak)	1/1
Elective	path/specialty		Subject offered in:	Course (compulsory, elective)
		-	Polish	obligatory
Cycle of	study:		Form of study (full-time,part-time)	
Second-cycle studies			full-time	
No. of ho	ours			No. of credits
Lectur	e: 15 Classes	s: 15 Laboratory: -	Project/seminars:	4
Status o	f the course in the study	program (Basic, major, other)	(university-wide, from another field	(1
		(brak)	(b	rak)
Educatio	on areas and fields of sci	ECTS distribution (number and %)		
the so	ciences	4 100%		
	Mathematical	sciences		4 100%
tel. 6 Elec	ill: jacek.gruszka@put 51 665 33 20 trical Engineering			
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One test (problematic issues, students can use their notes) Written exam

Course description				
Mathematical Induction				
Recursion:				
Recursive definitions				
Recursive dependencies				
Fibonacci numbers				
generating functions				
Catalan numbers				
Counting sets and functions:				
Counting of subsets				
Dirichlet drawer principle				
On-off rule				
Group of permutations:				
distribution of permutations into cycles				
Burnside's lemma				
Generating functions:				
development of rational functions				
generating functions in solving of recursive dependencies				
Catalan numbers				
Stirling numbers first and second kind				
Number theory:				
divisibility, GCD, LCM, primes numbers				
Euclid's algorithm				
Modular arithmetic:				
Fermat theorem				
Euler's theorem				
Chinese theorem of rests				
solving equations of modular arithmetic				
Graphs:				
basic concepts				
trees, cycles, tournaments				
Euler and Hamilton cycles				
bipartite graphs, associations and claim Hall				
planarity and Kuratowski theorem				
Algebraic methods in graph theory:				
neighborhood matrix				
incidence matrix Basic bibliography:				
 K.A.Ross, Ch.R.B.Wright, Matematyka Dyskretna, Państwowe Wydawnictwo Naukowe, Warszawa 1996. W.Lipski, W.Marek, Analiza kombinatoryczna, Państwowe Wydawnictwo Naukowe, Warszawa 1986. 				
3. R.J.Wilson, Wprowadzenie do teorii grafów, Państwowe Wydawnictwo Naukowe, Warszawa 1985.				
Additional bibliography:				
1. V.Bryant, Aspekty kombinatoryki, Wydawnictwa Naukowo-Techniczne 1977.				
 P. B. Yani, Asperty Kombinatoryki, Wydawnictwa Nadkowo recimiczne 1977. R.L.Graham, D.E.Knuth, O.Patashnik, Matematyka Konkretna, Państwowe Wydawnictwo Naukowe, Warszawa 1996. 				
E. R.E. Standari, S.E. Rham, S.F. aldonnik, malornatyka Konkouna, F.anstwowo wydawniotwo radikowo, walszawa 1930.				

Result of average student's workload

Activity	Time (working hours)			
Student's workload				
Source of workload	hours	ECTS		
Total workload	180	4		
Contact hours	30	4		
Practical activities	30	0		