

Program		Type of studies (cycle)	Third cycle		
		Name of the program		SEE Doctoral Studies in Mathematical Sciences	
Course					
Course title		Complexity			
Course code	Semester	Course status	ECTS credits	Contact hours	
	III		10	30	
Teaching staff	Teacher	Prof. Dr. Ivan Landjev			
	Other staff				
Course goals	The foundations of the theory of computational complexity are presented in the course. Properties of the complexity classes P and NP are discussed. Certain NP-complete problems are examined and a proof of Cook's theorem is given. The class PSPACE and the notion of PSPACE-completeness are considered.				
Course content/topics					
<ul style="list-style-type: none"> • Time complexity and Space complexity • Linear speed up • Deterministic simulation • The class P • The class NP • Polynomial time reducibility • NP completeness • The Cook-Levin theorem • NP complete problems 					
LITERATURE		Grading			
[1] Lewis, H. and Papadimitriou, C., Elements of the theory of computation, Prentice Hall, 2nd ed. 1998. [2] Sipser, M., Introduction to the theory of computation, PWS Publishing company, 1997. [3] Sommerhalder, R., Van Westrhenen S. C., The Theory of Computability: Machines, Effectiveness and Feasibility, Addison Wesley 1987.			Criterion	Points	Cut-off points
		1.	Homework assignment	40	22
		2.	Project	0	0
		3	Final exam	60	33
		Total			100