

Program		Type of studies (cycle)	Third cycle		
		Name of the program		SEE Doctoral Studies in Mathematical Sciences	
Course					
Course title		Computability			
Course code	Semester	Course status	ECTS credits	Contact hours	
	III		10	30	
Teaching staff	Teacher	Prof. Dr. Ivan N. Šoškov			
	Other staff				
Course goals	Computability theory is central to many areas of theoretical computer science. It originates in the 1930s with the study of the first formal computational models such as Turing machines, Church's-calculus, Post canonical systems and others. This course is an introduction to the theory of computability. The considered computational model is based on unlimited register machines. The connections between partial computable and partial recursive functions are presented. Certain important computable and computably enumerable problems are considered and methods for establishing incomputability are described.				
Course content/topics					
<ul style="list-style-type: none"> • Church's Thesis and effective computability • Models of computation • Examples of computable functions • Primitive recursive functions • Coding of the pairs and finite sequences • An enumeration of the computable functions, S-m-n theorem • Universal theorem • Decidable and semidecidable sets • Undecidable problems 					
LITERATURE		Grading			
[1] Cooper, S. Barry, Computability theory, CRC PRESS, 2003. [2] Cutland N., Computability: An introduction to recursive function theory, Cambridge University Press, 1980. [3] Rogers, H, Theory of recursive functions and effective computability, McGraw Hill, 1967. [4] Soare, R. I., Recursively enumerable sets and degrees, Springer, 1987.			Criterion	Points	Cut-off points
		1.	Homework assignment	40	22
		2.	Project	0	0
		3	Final exam	60	33
		Total			100