

Course title: Symbolic computation			
Lecturer: Đorđe Herceg			
Status: elective			
ECTS: 15			
Requirements:			
Learning objectives The aim of course is to familiarize students with symbolic computation software, to carry out computations from various fields of mathematics, and to use the software in research and practice.			
Learning outcomes After taking the course, the student will have developed: General capabilities: basic knowledge of symbolic computation software, comprehension of the literature, problem analysis, algorithm development, practical application. Subject-specific capabilities: Students will develop understanding of the principles of operation of symbolic computation software, and be able to write efficient programs in it. Students will be able to use the symbolic computation software for research in science and for mathematics education.			
Syllabus			
<i>Theoretical instruction</i>			
<ul style="list-style-type: none"> • Expressions. • Functions. • Control of flow control, encapsulation. • Symbolic computation software applied in mathematics: analysis, numerical analysis • Data processing and graphing. • Application in teaching. 			
<i>Students research</i>			
Didactical or scientific research connected with selected chapters from Calculus			
Suggested literature:			
<ol style="list-style-type: none"> 1. Herceg D. and Krejić N.: Mathematics and Mathematica, Faculty of Science, Novi Sad 2. Calclabs with Mathematica (Brooks/Cole Symbolic Computation) Nancy Blachman, Colin Williams, Albert Boggess, David Barrow, Maurice Rahe, Brooks/Cole, 1995 3. Programming in Mathematica, Roman Maeder , Addison-Wesley Professional, 1997 			
Weekly teaching load	Lectures: 5	Student research: 5	
Teaching methodology			
Lectures, consultations, interactive and dialog methods.			
Grading (maximal number of points 100)			
Pre-exam requirements	points	Final exam	points
Activities during lectures	-	Oral exam	40
Practical teaching	-		
Colloquia	60		
Seminar papers	-		