

Study: Physics			
Type and level of studies: Bachelor studies			
<b>Course name: Computer Application in Physics</b>			
Lecturer: Vučković Darko			
Status: Elective			
ECTS: 6			
Attendance prerequisites: Fundamentals of Informatics, Programming Basics			
<b>Course aims</b>			
Familiarizing students with the basics of programs used in research and teaching in physics.			
<b>Course outcome</b>			
The students have learned about the software they can use during scientific research work, as well as about software that can be helpful in teaching physics. They know their basic possibilities and how to use them.			
<b>Course content</b>			
<i>Theoretical Part</i>			
Introduction to modern software packages used in solving physics problems. Solving simple mathematical problems through computers - derivatives, integrals, function analysis, drawing graphs. Application of knowledge from mechanics, optics, thermodynamics, electromagnetism.			
Introduction to software used for processing measurement results - loading and making a table with measurement data, processing measurement results, drawing graphs, processing graphs. Application to simpler examples from mechanics, optics, thermodynamics... Getting to know and using the software for educational purposes in elementary and secondary education.			
<i>Practical Part</i>			
PRACTICAL EXERCISES: Exercises performed on the computer, tasks for individual and group solving. Consultations with discussion, obligatory term papers (writing and defence).			
<b>Literature</b>			
1. Gerd Baumann, Mathematica® in theoretical physics, Springer-Verlag-Heildeberg, 1993			
2. Катарина Сурла, Ђорђе Херцег, Сања Рапајић, Mathematica® за физичаре и хемичаре, Универзитет у Новом Саду, 1998			
3. Origin, Microcal software, 1999. Power graphics and data analysis with Origin, Microcal software, 2002.			
<b>Number of active classes</b>			Other classes
Lectures: 2	Practical classes:	Other forms of teaching: 2	
<b>Teaching methods</b>			
Lectures (2 classes per week during the semester) and term papers on selected topics.			
<b>Assessment (maximum 100 points)</b>			
<b>Course assignments</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>
Lectures	10	oral exam	35
Term papers	20	written exam	35
Practical exercises		.....	
Total	30		70