Program	Level of studies		First cycle	
	Program name		Educational Physics	
Course name	COMPUTATIONAL PHYSICS II			
Course ID	Semester	Course status	ECTS credits	L+E
PCS8611	**VIII**	**MANDATORY**	**6**	**2+2**
Lecturer	**Prof. dr. Senad Odžak**			
Aims and intended learning outcomes	The aim of the course is to introduce students to basic numerical methods with application in the field of Theoretical Physics and the ability to use computers in the modelling of physical systems and processes. It is expected that students successfully adopt the content of the course and that the acquired knowledge is successfully applied in further academic education and/or scientific work.			

Course content
Numerically solving transcendental equations. Interpolation. Numerical differentiation. Numerical integration. Numerical aspects of differential equations. Differential equations of higher order. Numerov method. Methods of linear algebra. Recursive and iterative algorithms.

Student workload (hours)		Grading	
Lectures and Exercises	75	Assessment method	Points
Exam preparation	70	Course Tests (Multiple assignments)	60
Assignments	0	Final Exam (Theory)	40
Other	5		
Total	150		
		Total	100

Literature

1. Lecture Notes
2. R. H. Landau, M. J. Páez Mejiá, Computational Physics, Problem Solving with Computers, John Wiley & Sons, 1997.
3. Paul L. de Vries, A First Course in Computational Physics, John Wiley & Sons, New York 1993
4. M. Hjorth-Jensen, Computational Physics, University of Oslo, 2007.

Remarks

The successful completion of the course implies achieving at least 55% of the total numer of points in both the course tests and final exam. Course tests imply solving physical problems with computers. All examination is done by using the written method.