

1.	Course	Grid and scientific programming			
2.	Code	INF-S5			
3.	Study programme	Informatics			
4.	Study programme organized by	Faculty of Computer Science and Engineering			
5.	Cycle	Third - PhD			
6.	Academic year / semester winter/summer/elective	first/second	7.	ECTS credits	7,5
8.	Teacher	Prof. D-r Boro Jakimovski, Prof. D-r Anastas Mishev, Prof. D-r Margita Kon-Popovska			
9.	Prerequisites	None			
10.	<p>Course programme goals (competences):</p> <p>The goal of the course is to introduce the students with the concepts of grid computing, collaborative research, programming large scale systems, high performance computing, distributed storage, current trends in the systems with high degree of parallelism.</p>				
11.	<p>Course syllabus: Introduction to grid computing, grid architecture, building blocks. Grid middleware, features and different implementations. Grid programming model. Programming HPC systems. Using the grid as a collaborative research platform. Introduction to distributed storage, problems and challenges. Grid data management. Service oriented grids. Cloud computing.</p>				
12.	<p>Teaching methods:</p> <p>Classes supported with slide presentations, interactive teaching, lab equipment and other software packages, teamwork, case studies, invited guest lecturers, presentations of project works, e-learning materials, forums and consultations</p>				
13.	Total fund of work hours	7,5 ECTS x 30 h = 225 h			
14.	Available hours distribution	45+30+150 = 225			
15.	Teaching activities	15.1.	Theoretical classes	45 h	
		15.2.	Practical classes (labs, exercises), seminars, team work	30 h	
16.	Other activities	16.1.	Project tasks	50 h	
		16.2.	Self study	50 h	
		16.3.	Homework	50 h	
17.	Grading				
	17.1.	Tests			40 points
	17.2.	Seminar work/ project (presentation: written and oral)			50 points
	17.3.	Active participation			10 points
18.	Grading criteria (points/grade)	to 59 points		5 (five) (F)	

		from 60 to 68 points	6 (six) (E)
		from 69 to 76 points	7 (seven) (D)
		from 77 to 84 points	8 (eight) (C)
		from 85 to 92 points	9 (nine) (B)
		from 93 to 100 points	10 (ten) (A)
19.	Conditions for attending the final exam	Successful completion of activities 15.1 and 15.2	
20.	Language	Macedonian or English	
21.	Quality assessment	Internal evaluation and student pools	

22.	Literature				
	Compulsory				
	No.	Author	Title	Publisher	Year
	1.	Vladimir Silva	Grid Computing for Developers	Charles River Media	2005
	2.	F. Berman, G. C. Fox and A. J. G. Hey (Eds.)	Grid Computing Making the Global Infrastructure a Reality	Wiley	2003
	3.	Ian Foster (Editor), Carl Kesselman (Editor), Morgan Kaufmann	The Grid 2, Second Edition: Blueprint for a New Computing Infrastructure	The Elsevier Series in Grid Computing	2004
	Additional				
	No.	Author	Title	Publisher	Year
	1.		Relevant and up-to-date paper from the area		
	2.				
	3.				