Program	Level of studies		Second cycle		
	Program name		**Physics**		
Course name	**PHYSICS OF DISORDERED SYSTEMS**				
Course ID	Semester	Course status	ECTS credits		L+E
PCM9681	**I**	**ELECTIVE**	**6**		**2+1**
Lecturer					
Aims and intended learning outcomes	The aim of the course is to teach student the knowledge important for understanding and describing the disorder systems. Expected learning outcomes: Understanding the terms order/disorder, fractals, and theories of percolation; self-use of literature and scientific papers in problem solving through seminar work; improving communication skills by presenting seminar work.				

Course content
- Introduction. Ordered and disordered systems. Order parameters.   - Fractals: fractal geometry, self-similarity, scale invariance, random fractals, DLA, fractal growth. Fractals and experiments.   - Percolation: geometrical phase transition, exact results (1D model, Bethe lattice), fractal geometry of percolation clusters, substructures.   - Examples of dissordered systems in physics: Glasses, Disordered magnets.

Student workload (hours)		Grading		
Lectures and Exercises	45	Assessment method		Points
Exam preparation	60	Final exam		50
Seminar	45	Seminar		50
Total	150			
		Total		100

Literature
1. Lecture notes 2. N.E. Cusak, The Physics of Structurally Disordered Matter, Adam Higler, Bristol, 1988 3. A. Bunde, S.Havlin , Eds., Fractala and Disordered Systems, Springer, Berlin, 1996 4. D. Stauffer, A. Aharony, Introduction to Percolation Theory, Taylor& Francis, London, 1992 5. N. P. Kovalenko, Yu. P. Krasny, U. Krey, Physics of Amorphous Metals, Wiley-VCH,2001

Remarks