

Study programme(s): Mathematics (MD)			
Level: PhD			
Course title: Wavelets and Gabor analysis 1			
Lecturer: Nenad M. Teofanov, Stevan R. Pilipovic			
Status: optional			
ECTS: 10			
Requirements: none			
Learning objectives Understanding of basic results in wavelet theory in analysis and synthesis of signals and basic notions in Gabor analysis.			
Learning outcomes It is expected that a student meets and learns basic notions, properties and examples of wavelets as orthonormal sequences as well as basic properties of wavelet and inverse wavelet transform. It is desirable that a student adopts the knowledge of basic theorems and their proofs and understands corresponding applications in signal analysis.			
Syllabus Elements of Fourier analysis. Wavelets, multiresolution analysis, Gabor analysis. Wavelet transform and spaces of functions and distributions.			
Literature 1. Gröchenig, K. <i>Foundations of time-frequency analysis</i> . Birkhäuser Boston, 2001. 2. Y. Meyer, <i>Wavelets and Operators</i> , Cambridge University Press, 1992. 3. I Daubechies, <i>Ten Lectures on Wavelets</i> . SIAM, 1992.			
Weekly teaching load			Other:
Lectures: 2	Exercises: 0	Other forms of teaching:	Student research: 6
Teaching methodology Exposition of theoretical basics with comments. Applications of theory through various examples of applications.			
Grading method (maximal number of points 100)			
Pre-exam obligations	points	Final exam	points
Colloquia	60	Oral exam	40