Course: Generalized functions

Course instructors: Nenad Teofanov, Danijela Rajter-Ćirić

Course type: elective

Credit points ECTS: 12

Prerequisites:

Course objectives:

To adopt basic notions from the theory of generalized functions, and observe the ideas leading to its development. To show specific problems which illustrate the importance and applications of the theory.

Learning outcomes:

To understand and accept specific features of generalized functions. To master selected practical problems involving the calculus with generalized functions, Fourier transforms and convolutions.

Course description (outline):

Theoretical classes

Notion and basic properties of test functions and generalized functions (distributions). Fourier transform, convolution, structure theorems and application to partial differential equations. Local and microlocal analysis, propagation of singularities.

References:

- 1. S. Pilipović, B. Stanković, Prostori Distribucija, Srpska Akademija Nauka i Umetnosti, Ogranak u Novom Sadu, Novi Sad, 2000.
- 2. G. Friedlander, M. Joshi, Introduction to The Theory of distributions, 2nd edition, Cambridge University Press, 1998
- 3. R. S. Strichartz, A Guide to Distribution Theory and Fourier Transforms, World Scientific, 2003.

Active teaching hours: 5	Theoretical classes: 5	Practice classes:

Methods of teaching:

Lectures, discussions and regular consultations.

Grading structure (100 points)

Solving selected homeworks: 50 points, oral exam: 50 points