Study program: Mathematics (Ph.D. program)

Course: Generalized Functions and Transformations

Course instructor(s): Stevan Pilipović

Course type (compulsory/elective): elective

Credit points: 10 ECTS

Prerequisites: -

Course objectives:

Essential understanding of the relationship between classical and generalized operations.

Learning outcomes:

Minimal:

The students should understand the relation of the weak and the strong derivative, and that of the convolution and Fourier's transformation.

Desirable:

The students should understand the wave front calculus.

Course description (outline):

Schwartz's generalized functions. Generalized operations and integral transformations. Convolution and the Fourier transformation. Wave front and the micro-local analysis. Ultradistributions.

References:

1. L. Schwartz, Theorie des distributiones, Hemann Paris 1960.
2. S. Pilipović, B. Stanković, Prostori Distribucija, Srpska Akademija Nauka i Umetnosti, Ogranak u Novom Sadu, Novi Sad, 2000.
3. Carmichael, R., Kaminski, A., Pilipović, S., Boundary Values and Convolution in Ultradistribution Spaces, ISAAC Series on Analysis Applications and Computations -Vol. 1, 2007.

Active teaching hours	**Theoretical classes:** 2	**Practice classes:** -6

Methods of teaching:

Lectures, with active participation of the students, discussion, etc.

Grading structure

Pre-exam obligations	**Points**	**Exam**	**Points**
Colloquia	**50**	Oral exam	**50**
Seminars			