Level: PhD

Course title: Green Chemistry and Ionic Liquids (DSH-711)

Status: Elective

ECTS: 15

Requirements: None

Learning objectives

- Expanding knowledge and critical understanding of principles of green chemistry as one of the most modern chemistry disciplines and its application in contemporary analytical chemistry, organic and pharmaceutical synthesis, environmental protection and energy preservation and conservation.
- Expanding students' knowledge of application of various modified analytical methods and techniques in accordance with green chemistry principles.
- Expanding knowledge of green solvents and ionic liquids and their application in analytical chemistry and other fields of chemistry.

Learning outcomes

After successful completion of the course, a student is able to:

- Explain significance of sustainability for the environment,
- Independently choose the appropriate methodology and plan, design and conduct the necessary experiments in solving problems in new or unfamiliar multidisciplinary context.
- Demonstrate independence and originality in decision-making in complex and unexpected situations.
- Demonstrate ethical and social responsibility, professionalism, integrity and reliability in reporting on research results.
- Successfully communicate with professionals from the same or different areas.

Syllabus

Theoretical instructions

Benign (green) solvents and reagents in chemical synthesis, industry, analytical procedures and separation techniques. Ionic liquids. Liquid-liquid extraction using the environmentally friendly solvents and ionic liquids. Green catalysis and biocatalysis. Sustainably energy sources. Energy storage. Application of analytical techniques in green chemistry.

Other forms of teaching

Review of the literature. Project preparation.

Weekly teaching load				Other:
Lectures: 5	Exercises:	Other forms of teaching:	Student research: 5	