



# CHEMISTRY OF NANOMATERIALS

Programme type	Master's studies (university)
Field of study	Chemistry
Study area	Physical Sciences
Degree	Master in Physical Sciences
Duration	2 years (4 semesters)
Workload	
Language of instruction	English
Location	Vilnius, Lithuania
Starting date	1st of September, 2020
Tuition fee	4234 EUR/per year

## PROGRAMME DESCRIPTION

- *The objective*

This program aims to provide an education that gives students an introduction to the processes involved in scientific research; provides the knowledge and skills needed for a career as a professional chemist; apply theoretical knowledge to real chemical problems; provides a suitable foundation for work in chemistry of nanomaterials or in a multi-disciplinary area involving chemistry and nanomaterials chemistry.

- *Career opportunities*

A graduate can be employed in chemical laboratories, research institutions or commercial structures dealing with high technologies.

- *Access to further studies*

Graduates of the Programme can choose doctoral studies in Chemistry or Biochemistry.

## KEY LEARNING OUTCOMES

Graduates of the programme develop the main abilities:

- to perform scientific research and to solve problems, connected with synthesis, analysis and application of nanomaterials, to work in interdisciplinary areas;
- to choose and apply appropriate instrumental methods for investigation of conventional and nanomaterials, interpret and evaluate results of investigation;
- to identify and predict the ways of solution of a problem, to solve problems of unfamiliar character, to summarize and critically evaluate scientific information and its reliability, to understand the responsibility for the decisions taken;
- has developed critical and analytical thinking and information technology skills applicable in many contexts.

## COURSE INFORMATION

The programme has the following structure:

Course Type	1st Semester	2nd Semester	3rd Semester	4th Semester
<b>Compulsory Courses</b>	Nanomaterials and nanostructures: Synthesis and Characterization	Materials Science and Functional Inorganic Materials	Kinetic and Electrochemical Methods of Analysis	Master graduation thesis
	Instrumental Methods in Nanotechnologies			
	Organic Analysis in Materials Science			
	Research Project I	Research Project II	Research Project III	
<b>Elective Courses</b>	Gas Chromatography	Biochemical and Nanotechnological Methods in Bionanotechnologies	Gas Chromatography	
	Chemistry and Physics of <i>f</i> -elements	Electrochemical Nanostructuration	Chemistry and Physics of <i>f</i> -elements	
	Solid State Reactions	Solid State Chemistry	Solid State Reactions	
	Modern Vibrational Spectrometry	Physics of Surface and Nanocompounds	Modern Vibrational Spectrometry	
	Molecular processes and kinetic spectroscopy	Self-Assembling and Synthesis of Nanostructural Materials	Molecular processes and kinetic spectroscopy	
	Molecular Modeling	Liquid Chromatography	Molecular Modeling	
	Surface Modification by Polymeric Nanostructures		Surface Modification by Polymeric Nanostructures	
	X-ray Diffraction Analysis		X-ray Diffraction Analysis	
	Management in a Modern Pharmaceutical Company		Management in a Modern Pharmaceutical Company	

## GRADUATION REQUIREMENTS

Studies are finished by defending of Final Master Degree Project.

## EXAMINATION AND ASSESSMENT REGULATIONS

The main form of assessment is an examination. Every course unit is concluded with either a written or written-oral examination or pass/fail assessment. Student's knowledge and general performance during the examination are assessed by using the grading scale from 1 (very poor) to 10 (excellent).

## APPLICATION AND SELECTION REQUIREMENTS

- Bachelor's degree or its equivalent in Physical Sciences (Chemistry), Life Sciences (Biochemistry), Technological Sciences (Chemical Engineering or Material Engineering);
- The competition score is composed of the grades in Analytical Chemistry, General Chemistry, Physical chemistry, Inorganic Chemistry, Organic Chemistry, Polymer Chemistry, Quantum Chemistry, Biochemistry, Chemistry of Colloids, Chemistry of Crystals and the Bachelor thesis paper;
- English Language requirements: applicant has to present document providing the level not lower than B2 (following the common European Framework of Reference Languages (CEFR), or TOEFL score 75/IELTS score 6.

### Academic contact

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### Admission contact

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