



PHOTONICS AND NANOTECHNOLOGY

Programme type	Master's studies (university)
Field of study	Technological Sciences
Study area	Materials Technology
Degree	Master in Technological Sciences
Duration	2 years
Workload	120 ECTS
Language of instruction	English
Location	Vilnius, Lithuania
Starting date	1 st of September

PROGRAMME DESCRIPTION

- *The objective*

The aim of the programme is to train highly qualified, international standards meeting experts in photonics and nanotechnology. This two-year Master's degree programme provides students with an in-depth knowledge of photonics, optoelectronics, semiconductor physics, nanotechnology and measurement techniques. Strong emphasis is placed on hands-on research and measurements experience obtained in modern labs of the National Centre for Physical Sciences and Technology. The graduates will be capable to continue PhD studies in physics, chemistry, materials science and similar study fields.

- *Career opportunities*

Graduates are able to work as researchers at universities, institutes, companies working in the field of applied sciences, innovations, photonics technologies.

- *Access to further studies*

Faculty of Physics of Vilnius University offers both Materials engineering (08T) and Physics (02P) third-level (PhD) studies.

KEY LEARNING OUTCOMES

Mastering of the most prospective fabrication technologies of photonics systems and components, organic and inorganic solid-state light sources, solar cells, and other hybrid technologies. Ability to implement optoelectronic

technologies in industry, perform experimental and fundamental investigations, create novel devices, implement innovative high technology projects.

COURSE INFORMATION

The programme has the following structure:

Course	1st Semester	2nd Semester	3rd Semester	4th Semester
Compulsory	New Materials and Technologies (10 ECTS)	Physics and technology of Inorganic Optoelectronics Devices (10 ECTS)	Solid-State Lighting Technology (10 ECTS)	MA Final Thesis (30 ECTS)
	Technologies of Organic Optoelectronics (10 ECTS)	Nanostructures and Material Engineering (5 ECTS)	Scientific Research Work II/II (10 ECTS)	
	Methods of Advanced Microscopy (5 ECTS)	Physics and Technology of Disordered Materials (5 ECTS)	Radiation detectors in CERN experiments (5 ECTS)	
		Scientific Research Work I/II (10 ECTS)		
Elective	Modern Semiconductor Devices – Physics and Technology (5 ECTS)		Management of Technology (5 ECTS)	
	Methods of Data Analysis (5 ECTS)		Photonics and Adaptive Optics (5 ECTS)	
	Interaction of Laser Radiation and Matter (5 ECTS)		Production Technologies of Silicon Solar Cells (5 ECTS)	

GRADUATION REQUIREMENTS

All the subjects of the programme should be passed and positive assessment of the Master's Thesis public defense is required.

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 or equivalent degree in physical, technological or engineering sciences.
- English language proficiency - the level not lower than B2 (following the Common European Framework of Reference for Languages (CEFR) (Internationally recognized certificate or *Skype* interview).
- Competitive score is calculated based on the weighted sum of:
 - all diploma supplement grades, except the final thesis or the final exam grade;
 - grades of "General Physics" and "Advanced Mathematics" or equivalent subjects;
 - the final thesis or the final exam grade;
 - additional points for publications and conference presentations.

Academic contact

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