

## FACULTY OF MATHEMATICS AND NATURAL SCIENCES

### Courses from the Bachelor's degree programs:

- MATERIALS PHYSICS AND NANOTECHNOLOGIES
- APPLIED MATHEMATICS
- DATA SCIENCE AND ENGINEERING

### Courses from the Master's degree programs:

- MEDICAL PHYSICS
- APPLIED MATHEMATICS
- BUSINESS BIG DATA ANALYTICS

### MODULES IN ENGLISH FROM MATERIALS PHYSICS AND NANOTECHNOLOGIES STUDY PROGRAMME

Course code	Course title	ECTS/Credits	Semester	Study cycle
<b>Bachelor's level courses</b>				
<b>Core modules</b>				
<a href="#">P000B011</a>	Introduction to specialty	6	autumn	bachelor
<a href="#">P190B118</a>	Classical Physics	6	spring	bachelor
<a href="#">P190B101</a>	Physics 1	6	Spring/ autumn	bachelor
<a href="#">P230B202</a>	Physics 2	6	spring/autumn	bachelor
<b>Specific modules from Materials Physics and Nanotechnologies studyprogram</b>				
<a href="#">P190B001</a>	Thermodynamics and Statistical Physics	6	autumn	bachelor
<a href="#">P190B302</a>	Quantum Mechanics	6	spring	bachelor
<a href="#">P200B103</a>	Optics	3	autumn	bachelor
<a href="#">P200B403</a>	Electrodynamics	6	autumn	bachelor
<a href="#">P240B001</a>	Vacuum Physics and Technics	3	autumn	bachelor
<a href="#">T150B221</a>	Micro- and Nanotechnology: Applications and Analysis Methods	9	autumn	bachelor
<a href="#">P250B301</a>	Solid State Physics	6	spring	bachelor
<a href="#">P260B103</a>	Physics of Surface Phenomena	6	autumn	bachelor
<a href="#">P220B305</a>	Nuclear and Particle Physics	6	autumn	bachelor
<a href="#">T150B186</a>	Functional Materials and Nanotechnologies	6	spring	bachelor
<a href="#">T150B210</a>	Phenomena of Modern Optics and Nanophotonics	6	autumn	bachelor
<a href="#">P520B001</a>	Astrophysics	3	autumn	bachelor
<a href="#">P190B005</a>	Classical Mechanics	6	spring	bachelor
<a href="#">P260B001</a>	Physics of Materials	6	spring	bachelor
<a href="#">T150B226</a>	Thin Films and Nanomaterials Engineering	6	autumn	bachelor
<a href="#">P190B117</a>	Mathematical Physics and Numerical Methods	6	autumn	bachelor

**MODULES IN ENGLISH FROM APPLIED MATHEMATICS, DATA  
SCIENCE AND ENGINEERING & BUSINESS BIG DATA  
ANALYTICS STUDY PROGRAMMES**

<b>Core modules for technical studyprograms students</b>				
<b>Course code</b>	<b>Course title</b>	<b>ECTS Credits</b>	<b>Semester</b>	<b>Study</b>
<b>Bachelor's level courses</b>				
<a href="#">P130B001</a>	Mathematics 1	6	autumn	bachelor
<a href="#">P130B002</a>	Mathematics 2	6	spring	bachelor
<a href="#">P160B003</a>	Theory of Probability and Statistics	6	autumn	bachelor
<b>Specific modules from the Applied mathematics studyprogram</b>				
<a href="#">P160B117*</a>	Stochastic Processes	6	autumn	bachelor
<a href="#">P170B127*</a>	Data Security	6	autumn	bachelor
<a href="#">P160B124*</a>	Machine Learning Methods	6	autumn	bachelor
<a href="#">P130B003*</a>	Differential Equations	6	autumn	bachelor
<a href="#">P160B116*</a>	Optimization Methods	6	spring	bachelor
<a href="#">P170B111*</a>	Cryptology	6	spring	bachelor
<a href="#">P170B129*</a>	Artificial Intelligence Solutions Development	6	autumn	bachelor
<a href="#">P170B132*</a>	Neural network methods	6	spring	bachelor
<b>Master's level courses</b>				
<a href="#">P130M100</a>	Nonlinear Dynamical Models	6	autumn	master
<a href="#">P170M100</a>	Cryptographic systems	6	autumn	master
<a href="#">P170M115</a>	Mathematical Methods of Artificial Intelligence	6	autumn	master
<a href="#">P130M010</a>	Mathematical Models of Epidemics	6	spring	master
<a href="#">P000M013</a>	Research Project 1	6	autumn	master
<a href="#">P160M123</a>	Stochastic Programing	6	spring	master
<a href="#">P000M014</a>	Research Project 2	6	spring	master
<a href="#">P160M101</a>	Multivariate Statistical Analysis	6	autumn	master
<a href="#">P110M001</a>	Combinatorial Optimization	6	autumn	master
<a href="#">P000M015</a>	Research Project 3	6	autumn	master
<a href="#">P160M100</a>	Theory of Reliability	6	spring	master
<b>Specific Module from Business big data analytics study program</b>				
<a href="#">P160M126</a>	Business Risk and Uncertainty Analytics	6	autumn	master

\*Prerequisites are indicated in the study module programme

**MODULES IN ENGLISH FROM THE MEDICAL PHYSICS STUDY  
PROGRAMME**

Course code	Course title	ECTS/Credits	Semester	Study cycle
<b>Master's level courses</b>				
<a href="#">B140M104</a>	Medical Radiation Physics	6	autumn	master
<a href="#">B140M006</a>	Radiation Protection and Safety	6	autumn	master
<a href="#">B145M002</a>	Radiobiology and Mathematical Modelling	6	autumn	master
<a href="#">B470M001</a>	Fundamentals of Human Anatomy and Physiology	6	autumn	master
<a href="#">B140M102</a>	Ionizing Radiation Imaging Instruments and Methods in Medicine	6	autumn	master
<a href="#">B110M002</a>	Digital Processing of Biomedical Signals	6	spring	master
<a href="#">T160M004</a>	Radiation Detectors and Measurements	6	spring	master
<a href="#">B145M010</a>	Applied Radionuclide Physics	3	autumn	master
<a href="#">B140M003</a>	Diagnostic Radiation Physics	6	spring	master
<a href="#">B140M004</a>	Radiation Therapy Physics	9	autumn	master
<a href="#">B140M105</a>	Radiation pollution	6	autumn	master
<a href="#">B000M003</a>	Research Project 3	6	autumn	master
<a href="#">B000M001</a>	Research Project 1	6	autumn	master
<a href="#">B000M002</a>	Research Project 2	6	spring	master