

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
Bachelor's level courses				
Core modules				
P000B011	Introduction to specialty	6	autumn	bachelor
P190B118	Classical Physics	6	spring	bachelor
P190B101	Physics 1	6	spring	bachelor
P230B202	Physics 2	6	spring/autumn	bachelor
Specific modules from Materials Physics and Nanotechnologies study program				
P190B001	Thermodynamics and Statistical Physics	6	autumn	bachelor
P190B302	Quantum Mechanics	6	autumn	bachelor
P200B103	Optics	3	autumn	bachelor
P200B403	Electrodynamics	6	autumn	bachelor
P240B001	Vacuum Physics and Technics	3	autumn	bachelor
T150B221	Micro- and Nanotechnology: Applications and Analysis Methods	9	autumn	bachelor
P250B301	Solid State Physics	6	spring	bachelor
P260B103	Physics of Surface Phenomena	6	autumn	bachelor
P220B305	Nuclear and Particle Physics	6	autumn	bachelor
T150B186	Functional Materials and Nanotechnologies	6	autumn	bachelor
T150B210	Phenomena of Modern Optics and Nanophotonics	6	autumn	bachelor
P520B001	Astrophysics	3	autumn	bachelor
P190B005	Classical Mechanics	6	spring	bachelor
P260B001	Physics of Materials	6	spring	bachelor
T150B226	Thin Films and Nanomaterials Engineering	6	autumn	bachelor
T155B145	Magnetic Materials	6	autumn	bachelor
P190B117	Mathematical Physics and Numerical Methods	6	autumn	bachelor

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

Core modules for technical study programs students				
Course code	Course title	ECTS Credits	Semester	Study
Bachelor's level courses				
P130B001	Mathematics 1	6	autumn	bachelor
P130B002	Mathematics 2	6	spring	bachelor
P160B003	Theory of Probability and Statistics	6	autumn	bachelor
Specific modules from the Applied mathematics study program				
P160B117	Stochastic Processes	6	autumn	bachelor
P170B127	Data Security	6	autumn	bachelor
P160B124	Machine Learning Methods	6	spring/autumn	bachelor
P110B001	Graph Theory and Network Science	6	spring	bachelor
P130B003	Differential Equations	6	autumn	bachelor
P160B116	Optimization Methods	6	spring	bachelor
P170B111	Cryptology	6	spring	bachelor
P170B129	Artificial Intelligence Solutions Development	6	spring/autumn	bachelor
Master's level courses				
P130M100	Nonlinear Dynamical Models	6	autumn	master
P170M100	Cryptographic systems	6	autumn	master
P170M115	Mathematical Methods of Artificial Intelligence	6	autumn	master
P000M013	Research Project 1	6	autumn	master
P160M123	Stochastic Programming	6	spring	master
P000M014	Research Project 2	6	spring	master
P160M101	Multivariate Statistical Analysis	6	autumn	master
P160M122	Financial Markets Models	6	autumn	master
P160M102	Time Series Analysis	6	autumn	master
P110M001	Combinatorial Optimization	6	autumn	master
P000M015	Research Project 3	6	autumn	master
P170M116	Blockchain Methods	6	autumn	master
P160M119	Data Mining Models	6	autumn	master
P160M100	Theory of Reliability	6	spring	master
P160M121	Data Mining Methods and Software	6	spring	master
P160M107	Models of Financial Mathematics	6	spring	master
Specific Module from Business big data analytics study program				
P160M126	Business Risk and Uncertainty Analytics	6	autumn	master

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

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