TENTATIVE LIST OF EXCHANGE COURSES

THE COURSES ARE DIVIDED INTO THREE MODULES AS BELOW:

MODULE 1: SOFT SKILLS

MODULE 2: ECONOMICS AND INNOVATIONS

MODULE 3: ICT & PROGRAMMING/TECHNOLOGY (comprises different tracks)

PLEASE BE INFORMED THAT COURSES OF DIFFERENT TRACKS/MODULES MAY OVERLAP WITH EACH OTHER. You are recommended to select most of the courses within one track and fewer courses from the rest of the tracks/modules.

The average number of required ECTS credits is 20-30 credits per one semester (depending on your home university's requirements).

The lists of courses may undergo minor changes at the beginning of each semester. Your final lists of courses will be confirmed at the beginning of your studies.

MODULE 1: SOFT SKILLS

Location: 9 Lomonosova St.

COURSE TITLE	SEMESTER	ECTS CREDITS
Intercultural Communication	Fall/Spring	3
Russian as a Foreign Language	Fall/Spring	3
Academic Writing	Spring	3
English for Specific Purposes	Fall	3
Negotiation, Influence and Conflict Management	Fall	4
International Research Management Essentials	Fall	4
Emotional Intelligence	Fall	4

MODULE 2: ECONOMICS AND INNOVATIONS

Locations: 9 Lomonosova St.
11 Chaikovskogo St.

COURSE TITLE	SEMESTER	ECTS CREDITS
Innovative Economy or Knowledge Economy	Fall	3
Strategic Innovations Management	Spring	3
Innovation Systems: Russian Federation Development	Spring	3
Technology Entrepreneurship	Spring	3
Digital Marketing	Fall/Spring	3
Human Capital in Innovative Economy	Fall/Spring	3
Project Management	Fall/Spring	3
Sustainable Cities Development	Fall/Spring	3
Intellectual Management of Creative Projects	Spring	3
Art and Natural Sciences: Theory, Aesthetics, Discourses	Spring	3
Organizational Behavior: Change Management	Fall/Spring	3
Business Scaling into Global Markets	Spring	3
Operational Management in ICT	Spring	3
Strategic Management in ICT	Spring	4
Business Economics in ICT	Spring	4
Product Development Technologies in ICT	Spring	4

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MODULE 3: ICT & PROGRAMMING/TECHNOLOGY

COURSE TITLE	SEMESTER	ECTS CREDITS
TRACK: HPC (HIGH-PERFORMANCE COMPUTING) **(available only for Master's students of relevant majors)** **Location: 14 Birzhevaya Liniya**		
Evolutionary Computing	Fall	6
Discrete Modeling	Fall	6
Architecture of Neural Networks for Deep Learning	Fall	6
Technologies and Infrastructure for Big Data	Spring	6
Introduction to Visualization	Spring	3
Quantum Cognitive Technologies of AI Systems	Spring	3
Machine Learning	Spring	3
TRACK: CT&BioInf (COMPUTER TECHNOLOGIES & BIOINFORMATICS) **(basic CT skills are required; for some courses a short interview with the track's coordinator is required)** **Location: 49 Kronverksiy Pr.**		
Systems Biology	Fall	3
Structural Bioinformatics	Fall	4
Metagenomics	Fall	4
Molecular Phylogenetics	Fall	4
Biotechnology	Fall	4
Bioinformatics Algorithms	Fall	4
Algorithms and Data Structures	Fall	3
Programming in Python	Fall	3
Introduction to Cultural Data Mining & Analysis	Spring	3
Population and Medical Genetics	Spring	4
Applied Statistics	Spring	2
TRACK: M&R (MECHATRONICS AND ROBOTICS) **(basic knowledge in mechanics, mathematics and physics is required)** **Locations: 14-16 Pereulok Grivtsova** **49 Kronverksiy Pr.**		
Modern Control Theory	Spring	6
Optimization Methods and Optical Control	Fall	3
Engineering Matrix Theory	Fall	3
Technical Systems Modeling	Fall	3
Sensorless Control	Fall	3
Time-Delayed Control Systems	Fall	3
Biomechatronics and Biomometics	Fall	6
Digital Image Processing	Fall	3
Simulation of a Mechatronic Machine	Spring	3
Theory of Inventive Problem Solving	Fall	3
Scientific Index Search	Spring	3
Microcontroller Systems	Spring	3
Modeling and Control of Robotic Systems	Spring	3
Robotic Systems Hardware	Spring	3
Control Systems Programming	Fall	3
Dynamics of Robotic Systems	Fall	3
Biomechatronic Systems Development	Spring	3
Smart Materials in Mechatronics	Fall	3
Construction of Mechatronic Systems	Fall	3
Digital Control Systems	Spring	3
Actuators Control	Spring	3
Computer Aided Design	Spring	3
Cyber-Physical Systems and Technologies	Spring	3
Robot Sensing Systems	Fall	3

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TRACK: ISec (INFORMATION SECURITY) **(basic CT skills are required)** **Location: 9 Lomonosova St.**		
Information Security Laws and Regulations	Spring	3
Information Security Risk Management	Spring	3
Operating Systems	Spring	3
Web Software Development	Spring	3
Database Security	Spring	3
Modern Cryptographic Algorithms	Spring	3
Scalable Cloud Computing	Fall	3
Network Security	Fall	3
Computer Networks II – Advanced Features	Fall	3
Cryptography And Data Security	Fall	3
Mobile Systems Security	Fall	3
TRACK: EM (ENVIRONMENTAL MANAGEMENT) **Location: 9 Lomonosova St.**		
Corporate Environmental Management	Fall/Spring	4
Environmental Auditing	Fall/Spring	3
Organization of Cleaner Manufacturing	Spring	3
TRACK: BioCh (BIOCHEMISTRY) **(basic knowledge in chemistry, biotechnology, chemical engineering is required)** **Location: 9 Lomonosova St.**		
Nanobiotechnology	Spring	3
Advanced Materials	Spring	6
Basics of Genetic Engineering	Spring	6
Computational Methods and Modeling in Materials Chemistry	Spring	3
Smart Materials	Spring	3
Modern Technologies for Manufacturing Nanoscale Objects and Materials	Spring	3
Preclinical Studies	Spring	3
Molecular Oncology	Spring	3
Proteomics	Spring	3
Advanced Methods in Chemical Nanoengeneering	Fall	6
Inorganic Chemistry of Materials	Fall	6
Catalysts and Green Chemistry	Fall	6
Molecular Electronic Structure and Band Theory	Fall	6
Advanced Materials for Biomedical Applications	Fall	6
Creation, Implementation and Promotion of New Technology and Materials into the Global Market	Fall	6
Technological Forecasting and Marketing	Fall	6
Nanotoxicology	Fall	6
Advanced Biochemistry	Fall	6
Molecular Biorobotics	Fall	6
Molecular Neuroscience	Fall	6
TRACK: PH&MS (Physics and Material Science) **(available for students majoring in Physics, Engineering or Material Science; a short interview with the track's coordinator is required for admission)** **Location: 9 Lomonosova St.**		
Nanoplasmonics	Spring	4
Spintronics	Spring	3
Quantum Optics	Spring	3
Electrodynamics of Metamaterials	Spring	4
Experimental Methods of Nanophotonics	Spring	5
Methods of Quantum Chemistry	Spring	5
Mathematical Methods in Physics	Fall	3
Introduction to Photonics	Fall	3
Advanced Quantum Mechanics	Fall	4

Modern Trends in Nano-Photonics	Fall	3
Nonlinear Photonics	Fall	3
Introduction to Experimental Methods of Nanophotonics	Fall	2
Experimental Characterization Methods in Nanophotonics	Fall	5
Quantum Optics	Fall	2
Many-Body Quantum Theory	Fall	5
Methods of Quantum Machine Learning	Fall	3