Federal State Autonomous Educational Institution of Higher Education «National Research Nuclear University «MEPhI»

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MEPhl Guidebook

Welome by rector of MEPhI

 $\nabla^2 \psi + \frac{2m}{h^2} (E-V) \psi = 0; c=2.9979 \times 10^{10} \text{ сек};$ $H_f^3 + H_f^2 > He_2^4 + n_0^1 + 17.6 \text{ MeV}; E = hv;$





MIKHAIL N. STRIKHANOV, Rector, Dr. Sc, Professor

Dear candidates! Perhaps right at this moment you are making a final decision to enroll at our university. If so it will be the right choice. With its glorious past, remarkable present and brilliant future, MEPhI is one of the most prestigious and iconic universities in Russia.

Today MEPhI is a Russian national research and education center with branches in all the regions, where our main partner, Russian Federation national nuclear corporation "Rosatom" is present. MEPhI's name is associated with the highest quality of education. Our University is known for a unique approach to education, which combines fundamental training in physics and mathematics with comprehensive engineering training. We also actively involve students in scientific research.

To enhance national prestige does not mean to stay within the national borders. Our students have internships in the leading universities abroad. Every year more and more foreign students come to MEPhI, and leading foreign scientists are engaged in teaching at our University. I wish you to graduate with honors from your schools and become MEPhI students.

Studying in MEPhI means succeeding in life and becoming a true expert!

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Faculty for Physics and Technology







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International cooperation in education

Training for foreign education and research centers

Student life

Sports



Admission dates and deadlines for 2018/19

Since its foundation the University has been the center of development of the advanced scientific and technical thought, training highly professional specialists for the strategically important spheres of Russian economy, including nuclear industry. Within its walls serious research activities were carried out and innovative solutions were developed and implemented. Today same as all the past decades MEPhI is well known for its strong traditions, competent teaching staff, talented and enthusiastic students. That is why MEPhI's diploma is the evidence of one's profound knowledge and a guaranteed start in life.

> Vladimir Vladimirovich Putin, President of the Russian Federation



unique advantages

13 student design bureaus Internationa accredited educational programs B¹

Internships in the world leading science centers and laboratories

MEPhI is one of the best national universities which provides training for elite experts in nuclear physics, science and technology, IT and other high-technology sectors of the Russian economy.

MISSION

To generate, promote, use and preserve scientific knowledge aiming to address global challenges of the XXI century as well as to provide innovative transformations in Russia and development of the country's competitiveness in the global energy and non-energy high-tech markets. Science has come to a point where we need to construct major facilities to generate new knowledge. The resources of a single country. no matter how large, appear not to be enough to build such facilities. Thus international collaborations from small ones, with participation of only several countries to large ones with participation of tens of countries and hundreds of organizations are being established. The most well-known projects of such kind include ITER (France) - 34 countries, 150 organizations and Large Hadron Collider (Switzerland) - 42 countries, 184 organizations, MEPhI is an active participant of more than 30 research collaborations, where students can have their internship and research practice, write their thesis.

Switzerland • Large hadron collider (experiments ATLAS, ALICE, CMS, NSW, SHIP, NA61/ SHINE (CERN)). USA • Experiments STAR, PHENIX, LZ, GlueX, «g-2». Germany • FAIR -Facility for Antiproton and Ion Research. XFEL (DESY), HADES (CSI). Japan • BELLE, KEK, T2K. France • ITER – International thermonuclear Experimental Reactor. Italy • ICECUBE, PAMELA. Russia • NICA – Nuclotron-based Ion Collider facility. PIK reactor – Research nuclear neutronique reactor, MARS - Multiturn Accelerator-Recuperator Source of synchrotron radiation. PEARL - petawatt laser complex VEPP-2000 electron-positron collider

The educational process of the University is based on three key concepts: education, science and innovation, their deep interconnection is ensured by research work

MEPhI's unique experimental facilities and centers Advanced educational programs



Modular education, individualized education

WORLD-CLASS SCIENCE AND RESEARCH

The University is a recognized leader and has the unique expertise and advantages in the following breakthrough directions:

- nuclear research and engineering;
- laser, plasma and beam technologies;
- microwave nanoelectronics;
- nanobiotechnologies biomedicine and medical physics;
- Information technology.

World-class research areas are being developed on the basis of the main MEPhI research areas:

- space research and technologies;
- controlled thermonuclear fusion;
- materials for nuclear and space applications.

All these years MEPhI's staff have successfully combined traditions of the national higher education with the advanced training programs. The University holds the leading positions in the world in training of highly qualified specialists for fundamental science, nuclear industry and other knowledge-intensive industries. Skills and knowledge of MEPhI's graduates, their research and engineering designs are in demand in science and industry, they increase the competitiveness of our country on the world level.



Chairman of the State Duma of the Federal Assembly of the Russian Federation



MEPhI has been in TOP-100 of THE ranking by subject «Physical Science» for five years in a row, and it has been in TOP-100 of QS ranking by subject «Physics and astronomy» for four years in a row



In 2017 MEPhI was awarded by Web of Science with the prize in nomination «For publication strategy»

National rankings*



- Rating of the demand for higher education institutions in the Russian Federation
- «Social Navigator» media group «Russia Today» with the participation of the Center for Labor Market Research, the 1 st place among Russian engineering universities.



UHTERFAX

2nd place in the National ranking of universities

РОССИЯ 🥮 СЕГОДНЯ

2nd place among Russian universities according to positive student reviews



ЭКСПЕРТ РА Рейтинговое агентство

3rd place in the annual rating of Russian universities The history of the leading Russian scientific center is inextricably connected with the success of our country in fundamental sciences and breakthrough directions of technology development. In the course of the years of its work the University has founded leading scientific schools by setting the trend for the national scientific and technical development. It has trained tens of thousands of qualified specialists for the high-tech industries of the national economy. Today the highest professionalism of the staff, continuity and preservation of the University's vast experience and rich traditions in combination with the excellent organization of the research process allow the most complex projects with enormous challenges to be realized.

> Olga Yurevna Vasilieva, Ministry of Education and Science of the Russian Federation



MEPhI was awarded with the Order of the Red Banner of Labour

MEPhI was founded during the Second World War in 1942 and made a great contribution to the national victory. It was called Moscow Mechanics Institute of Ammunitions. Its original purpose was to train specialists for military and nuclear programs of the USSR.

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Foundation of the Moscow Institute of ammunition

Reorganization into MoscowEngineering Physics Institute (MEPhI)

Achieving the status of national research nuclear University Reorganization as National Research Nuclear University "MEPhI" University became one of 15 best universities in Russia – candidates for inclusion into TOP-100 world universities



Nobel Prize laureates – MEPhI founders

Great scientists and prominent public officials were among the founders of MEPhI: I.V. Kurchatov, B. L. Vannikov, Y. B. Zel'dovich, N.N. Semenov, A. I. Leipunskii and many others.





I. E. Tamm

I. M. Frank









N. N. Semenov

N. G Basov (MEPhI graduate)

A. D. Sakharov aduate)

P. A. Cherenkov

In 2008 MEPhI was reorganized and renamed as the Federal State Budgetary Educational Institution of Higher Professional Education "National Research Nuclear University (MEPhI)." Educational institutions under the Ministry of Education and Science of the Russian Federation and "Rosatom" in cities with the nuclear enterprises were affiliated to MEPhI.

Transformation of MEPhI

INVESTING IN HUMAN CAPITAL

- Recruitment of leading international academic staff
- Internationalization of the educational environment

INVESTING IN INNOVATION ACTIVITIES

- Development of MEPhI innovation environment
- Implementation of «Open innovation» principles in the activities of StrAUs

INVESTING IN INTERNATIONAL POSITIONING OF MEPHI

- Becoming a world-class academic center
- Operating as a university with a sustainable academic reputation

Education in MEPhI

Today MEPhI is the key university of the nuclear industry, which uses the high standards of education on all the levels: university-technical high school-collegesecondary school. You are represented in almost all of our cities, which makes you one of the most regionally distributed universities. Education and professions that people acquire in MEPhI not only let them become well prepared specialists, but also provide continuity of generations in the enterprises including the cities of the "Rosatom" presence.

> Alexey Likhachev, General Director of Rosatom State Atomic Energy Corporation

NUMBER OF EDUCATION TRACK FOR EACH LEVEL:





 internships at the leading and foreign universities and science centers;

Education in MEPhI

Variability and flexibility of educational programs since 2017



BACHELOR PROGRAMS



Academic staff of the University is constantly working on quality improvement of the education process, being in constant creative search and in close collaboration with leading research institutions of our country. The University creates conditions and opportunities for free expression of thoughts and ideas, it supports the cult of knowledge and pursuit of success.

> Vladimir Viktorovich Uiba, Director of the Federal Biomedical Agenc

Flexible educational path Personalisation of the teaching process Interdisciplinary knowledge Independent work of students Project and remote learning methods Credit-unit system



MASTER AND PHD PROGRAM

Strategic Academic Units (StrAUs)



High quality of education

Quality of the research is in the focus

The average citation of publications per 1 faculty (five years)





The total number of publications, Scopus

7293 publications in total



Industrial partnerships network expansion



The share of publications with industrial partners, %

FTH 7urich

According to the analytical system SciVal for 2016

Tokio Insitute of Technology Technical University of Munich NRNU MEPHI MIT Delft University of Technology



System of digital education







>100 000

registered students from

153 countries

Admission of talented students as the basis for the development

Pre-university

- ∘ university lyceum № 1511
- university lyceum № 1523
- evening lyceum

MEPhI Network school

Prototyping resource centers

Test site

Laboratories in basic schools of the University

WorldSkills



Pilot educational projects:

Pre-university, engineering and atomic classes, University Saturdays

Specialized Olympiads and competitions

Project activity of schoolchildren

Flexible educational path

Educational structure of the University

Strategic academic units



Institute of Laser and Plasma Technologies (LaPlas)



Institute of Intelligent Cyber systems (ICIS)



Institute of Financial and Economic Security (IFES)

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Institute of International Relations (IIR)

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Institute for Nuclear Power Engineering (OINPE)



Faculty for Physics and Technology (FPT)

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Faculty for Business Informatics and Integrated Systems Management (FBIISM)

INPhE Institute of Nuclear Physics and Engineering



MISSION

Nuclear physics and engineering have been the drivers of the world science development from the very beginning. Fundamental research of the Universe, which indirectly influences all mass technologies, is carried out in the nuclear centers. It is no surprise that the Internet was invented in the international nuclear center CERN.

INPhE students are provided with traditional for MEPhI training in physics and mathematics and they can choose specialization in a wide range of nuclear technologies from atomic power and new materials to cosmology and particle physics.



If countries choose nuclear power our work is to help them use it in a safe reliable and sustainable way.

> Yukiya Amano, IAEA General Director

GENERAL INFORMATION

Institute is engaged in scientific research and innovation activities, in training of the specialists for research in the fields of physics of matter structure, cosmophysics, directed at search of new states of matter and energy sources, as well as engineering and technical and innovation activities in the sphere of nuclear technologies, new materials development, nuclear power plants improvement.

Institute's advantages include active collaborations with the leading international nuclear centers and participation in megaprojects together with the scientific institutes of the Russian academy of science and state corporations "Rosatom", "Roscosmos", "Rostec".

Students are offered international educational programs in two languages, accredited according to the international standards, including programs, realized together with the European universities, MEPhI partners, members of the European Nuclear Education Network of Science in Nuclear Engineering (MSNE) ENEN.



MISSION

To ensure competitiveness of Russia among the developed countries in the field of laser, plasma and radiation research and technologies and to become a world leader in training highly qualified personnel for scientific and engineering industries, national and international research and education centers.



By choosing our Institute you are choosing not only profession, which will ensure your welfare, you are choosing the LIFESTYLE of a scientist or an engineer who will determine the future life of human civilization!



Your facilities give unique opportunities to expand knowledge in the field of laser and plasma physics in high-pressure and high-power modes.

Julien Fuchs, Research Director of CNRC, Ecole Polytechnique, France

GENERAL INFORMATION

The institute unites MEPhI departments and key departments of Prokhorov General Physics Institute (Russian Academy of Sciences) and P.N. Lebedev Physical Institute of the Russian Academy of Sciences. The aims of the institute are complex. They include conducting of fundamental and applied research and development of the new plasma, laser, nano and bio technologies. The institute has a developed experimental basis inside the University and has strong partnership relationship with the biggest research centers in the world.

Graduates of the institute's departments work in the leading universities and laboratories in different countries as well as in the biggest Russian and foreign business companies. The majority of the students publish the results of their works in the leading international physics journals and present them at international conferences even before the defense of their master degree thesis.

PhysBio S Institute of engineering Physics for biomedicine



MISSION

The PhysBio was found to prepare highly qualified interdisciplinary specialists for advanced scientific research and physics engineering.

🔊 PhysBio

In the nearest future, medicine will gather together teams of medical doctors and biotechnology engineers. 3D-printing of vital organs, digital twins, on-line medicine, laser-, nuclear-,nano- and ITtechnologies are at the base of Hi-tech medicine of tomorrow.



MEPhI is in a unique position possessing various aspects of physics, nuclear technologies and biomedicine, MEPhI is able to influence the development of biomedicine not only in Russia, but all over the world.

Paras N. Prasad, Chairman of the International Council of PhysBio

GENERAL INFORMATION

Within the framework of the Institute, interdisciplinary research is carried out in the field of synthesis of nuclear medicine technologies and nanotechnologies for biomedicine. New technologies and devices for diagnostics and therapy of dangerous diseases are being developed, which include radiopharmaceuticals for nuclear medicine. New high-performance methods of computer nanomedicine are being created.

Students and graduate students are involved in scientific research and they also actively participate in inventive, rationalizing activities; in solving urgent problems of the national economy.

During their training, students have the opportunity to undergo internships and production practices in leading foreign scientific and educational centers: University of Aix-Marseille (France), University of Buffalo (USA), Pernambuco Federal University (Brazil), Reims Champagne-Ardennes University (France), the University of Ulm (Germany), the University of Lorraine (France), the University of Oulu (Finland), the Lyon Institute of Nanotechnology (France), the University of Lyons (France), the Rochester University (USA), the Turin Polytechnic ATU (Italy), Poly-Technical University of Valencia (Spain), and others.

NESPI **Institute for** Nanoengineering in Electronics, Spintronics and Photonics



MISSION

Training of the highly qualified specialists and carrying out of advanced research in the field of modern electronics for scientific and industrial applications, the development of devices and tools of microwave nanoelectronics, terahertz photonics, the element base electronics.

រារី៖ NESPI

During the training at the Institute students will obtain professional knowledge and skills in various stages of the production cycle of modern electronics: from computer modeling of materials parameters to testing of a finished instrument or circuit.



MEPhI is a recognized international university in the field of electronic technology. Graduates of MEPhI are competent in using innovations in practice, which is an important criterion of success. It makes them valuable employees, especially in Cadence.

Patrick Haspel, Head of Global Academic Partnerships and University Programs at Cadence Design Systems Inc.

GENERAL INFORMATION

The projects carried out by the Institute allow students not only to master theoretical knowledge from the best specialists of the industry, but also to gain practical skills in the advanced fields of science and technology. The unique laboratory base of MEPhI Nanocenter allows to master practically all modern methods of research of parameters of devices and materials, and also to make, collect and test the own device or circuit element. INTEL labs are equipped with modern software (CAD) and hardware. The main areas of work of the Institute are special electronics for industrial applications, electronics on new physical principles: quantum, terahertz, Photonics, spintronics; devices and materials of heterostructural microwave electronics (GaN, SiC), methods of mathematical modeling of devices and structures for modern nanoelectronics.

The Institute cooperates with leading industrial and research organizations of Russia, members of JSC "Roselectronics", GC "Rosatom", the Russian Academy of Sciences. Graduates have a high level of training, in demand on the global level. ICIS



Institute of Cyber Intelligence Systems



Training of personnel capable of resisting modern threats and challenges, possessing knowledge and competence in the field of cybernetics, information and financial security; capable of solving the problems of the basic software developing, increasing the critically important information systems security as well as the countermeasures for financing of terrorism and money laundering.

🖗 ICIS

The Institute is engaged in research and innovative development in the field of cybernetics, information and financial security, robotics, artificial intelligence and mathematical modeling.



Students of MEPhI have a solid scientific basis to become experts in cyber security. I am sure they will become excellent professionals.

Bart Preneel,

Full Professor of the Electrical Engineering Department of the Katholieke University Leuven, Belgium International Association for Cryptologic Research (IACR) President

GENERAL INFORMATION

The advantages of the institute are: staff preparation with relevant competencies in the field of cybernetics, information and financial security; training in proactive cyber defense technologies; involvement in research work in the field of robotics and cyberphysical systems.

The advantages of the Obninsk branch of ICIS are: training of personnel with relevant competencies in the field of analysis and processing of large data, intelligent video analytical systems and decisionmaking in conditions of incomplete information, building of network and wireless architectures.

In particular, at the Institute there are 4 small innovative enterprises, where students can practice and can participate in modern IT projects. In addition, the Institute interacts with key employers in the field of IT such as: Rosatom, Rosfinmonitoring, Mail.ru, Kaspersky Lab and others, which are actively involved in the educational process.





Institute of Financial and Economic Security



MISSION

Training of the highly qualified specialists in the field of financial monitoring, information and economic security, economics, audit and national law based on the integration of science and academic mobility of students, advanced educational technologies for solving the problems of financial and economic security of the Russian Federation and partner countries in the international anti-laundering system.

■ IFES

The Institute is the first and so far the only higher educational institution in Russia for training personnel for solving the problems of financial monitoring of a full educational cycle: basic higher education, master's, post-graduate, advanced training.

GENERAL INFORMATION

The advantage of the Institute is a comprehensive training of personnel with advanced knowledge and competence in the field of cybernetics, information and financial security for solving the tasks of combating money laundering, protecting critical facilities that can withstand modern threats and challenges. Graduates of the institute can find application of their knowledge when working in commercial banks, leasing companies, insurance companies, etc .; in financial intelligence units of the countries members of the Eurasian Group; in IT-companies (FORS, Technoserv, CRIC, etc.); in consulting companies (PriceWaterhouseCoopers, Ernst & Young, etc.); in international organizations (FATF, World Bank, Egmont Group).





Institute of International Relations



Training of highly qualified international specialists with general science knowledge and the necessary competencies in the field of analysis of international relations, international scientific and technological and industrial cooperation, special sections of international law and management of international highly profiled projects.

🎯 IIR

The Institute implements a unique interdisciplinary educational program combining basic science education with humanitarian educational blocks on international relations and special linguistic training. Students pass internships in foreign universities and research centers.

GENERAL INFORMATION

The Institute was established in 1999 for staffing Of the Federal structures: the Ministry of Foreign Affairs, the Ministry of Education and Science, Ministry of Economic Development, State Corporation Rosatom, State Corporation Roskosmos, JSC Rosoboronexport "and other government departments, scientific and research institutes of the RAS, Russian

representative offices abroad. Academic program was created with the support of the academician E.M. Primakov and academician A. V. Torkunov. The Institute is engaged in training of analysts, managers, specialists in information and PRtechnologies for the staffing of the international activity of the Russian Federation.

OINPE Institute
for Nuclear
Power
Engineering



Training of highly qualified specialists in the field of high technologies with the involvement of the innovative potential of the First Science City for enterprises and research organizations in the field of nuclear power, intelligence computer systems, pharmaceuticals, biotechnology and nuclear medicine.

<₽∕≠> OINPE

The largest international multidisciplinary scientific and educational campus is located in Obninsk, an hour's drive from Moscow, in an ecological and green place, where specialists are trained for high-tech industries, enterprises of the IT sector, medical institutions, and state structures.

GENERAL INFORMATION

The Kaluga region, in which the campus is located, is a flagship of the cluster model of economic development. Strategic partnership with constantly developing enterprises of pharmaceutical, transport and logistics, ICT-clusters, cluster of polymer composite materials makes teaching of students practically oriented.

Enterprises that make up the core of specialized clusters, act as trainee sites for students in nuclear energy, intellectual computer systems, pharmaceuticals, biotechnology, nuclear medicine and management.

The successful location of the campus allows to use the potential of research institutes, leading enterprises of the region and Moscow itself, specialized resource centers in the partner cities of the distributed campus of NRNU MEPhI for obtaining practical skills and professional competencies by the students.

249040, Kaluga district, Obninsk, Studgorodok, 1 Fax: +7 (484) 397-08-22 Admission Committee: +7 (484) 397-01-31 www.iate.obninsk.ru

Today, the Institute conducts training in four directions of training, bachelor programs, in 17 directions of training, master's degree in 15 directions of training, post-graduate students in 9 directions of training.





Faculty for Physics and Technology



MISSION

To train young, promising personnel for leading research and industrial divisions and enterprises of SC «Rosatom» in the field of development, design and operation of nuclear physics instruments, information-measuring and control systems and facilities for various purposes (defense engineering, oil exploration, mining, medical, reactor engineering, power facilities, space exploration, etc.).



The faculty carries out educational activities in close connection with the research, technology and innovation activities. The basis of the educational process at the faculty is a combination of fundamental physical and mathematical training and providing graduates with excellent engineering skills on the basis of the best global practices and international standards of engineering education on the sites of the university and the leading research institutes of the State Corporation Rosatom and the Russian Academy of Sciences.



Master's programs of the faculty in the specialized field «Nuclear Physics and Engineering" (14.04.02) are developed and implemented jointly with the All-Russian Scientific Research Institute of Automation named after N. L. Dukhov (hereinafter - VNIIA) with the support of SC «Rosatom».

Yuri N. Barmakov,

First Deputy Head of FSUP VNIIA of SC «Rosatom» Corporation, Doctor of Technical Sciences, Professor, Lenin Prize Winner and the USSR State Prize Winner, as well as a number of other state awards.

GENERAL INFORMATION

The system of education at the faculty is oriented on fundamental physical and mathematical training and practical research work of students. The advantage of studying at the faculty is the possibility during training to undertake a traineeship at the leading scientific research institutes of SC «Rosatom" and the Russian Academy of Sciences, located in close proximity to the university.

As trainees of leading research institutes, our students can put knowledge they obtained at MEPhI into practice and have the possibility of further employment.

Our students take an active part in various youth associations, winning prizes every year and forming communicative and leadership qualities.

Studying at the faculty, students can gain knowledge in a wide range of disciplines (nuclear instrumentation, new types of materials, automated design and engineering, electronics and microprocessors, analog and digital signal processing, information transfer systems, computer technologies and multiscale modeling.





Faculty for Business Informatics and Integrated System Management



To train highly qualified specialists capable of meeting the contemporary challenges and "taking the helm" of a new industry based on additive technologies, "Big data", cyber-physical production principles, providing innovative development opportunities for the domestic economy and improvement of the business community on the basis of system analysis.



The faculty forms competencies that allow graduates to respond flexibly to changes in the world economy, business, social development, technological structures and to provide a proper place in the world market for domestic structures where they are expected to work.

GENERAL INFORMATION

The Faculty provides education and training for bachelors, masters and postgraduate students. Scientific and innovative work related to the formation of a space for creating innovations in a real sector of the economy and development of scientific complex projects on "mesoeconomics", creation of business models for innovative development of "Meso- economic" systems - large corporations and territorial complexes (priority development areas - PDA) are under way. Information technologies and hardware and software systems developed for educational process make teaching and learning at the faculty effective and modern.

Educational Programs





Elena B. Vesna, Vice-Rector, Dr. Sc. in Psychology, Professor

We give our students the opportunity to design their educational track. Starting from the first year, each student can make up his own curriculum, select disciplines that are interesting and necessary for him.

It goes without saying that he will not do it alone, but with the support of a tutor and mentors from senior courses. In addition, we offer a large number of additional courses that allow our students to expand their professional and personal competencies, develop their abilities.

Bachelor Degree

Direction

Major/program name

Institute/Faculty

NUCLEAR PHYSICS AND ENGINEERING CODE: 14.03.02

Radiation Ecology and Safety of Human and Environment	Institute – of Nuclear Physics and Engineering
Nuclear Physics and Cosmophysics	
Experimental Research and Fundamental Interactions Modeline	g
Particle Physics and Cosmology	
Application of Streams of Charged Particles in Physics of Extreme States of Matter and Nuclear Technologies	
Physics of Fundamental Interactions	
Physical Materials Science for High-Tech Industries	
Physics of Extreme State of Matter	
Physics and Thermophysics of Nuclear Power Facilities	
Innovative Nuclear Engineering in collaboration with OINPE MEPhI	
Innovative Nuclear Engineering in collaboration with OINPE MEPhI	_
Innovative Engineering in Nuclear Medicine in collaboration with OINPE MEPhI	Institute of Engineering Physics for Biomedicine
Physics of High-Speed Processes	Faculty for Physics
Information Measuring Systems of Nuclear Power Facilities and Technique of Radiation Experiment	and lechnology

Nuclear and Electrophysical Instrumentation

APPLIED MATHEMATICS AND INFORMATICS CODE: 01.03.02

Mathematical and Software Support of Cyber-Physical Systems	Institute of Cyber
Methods of Nonlinear Dynamics and Mathematical Modeling	Systems
Mathematical Modeling in Condensed Matter Physics	Institute of Nanoengineering in Electronics, Spintronics and Photonics

APPLIED MATHEMATICS AND PHYSICS CODE: 03.03.01

Theoretical Physics and Mathematical Modeling	Institute of Laser and Plasma Technologies
Quantum Computer Systems and Data Processing	
Theoretical and Experimental Physics of Solid State	

Bachelor Degree

		CODE 14 02 02
Direction	Major/program name	

Physics of Kinetic Phenomena **Condensed Matter Physics**

Institute of Nanoengineering in Electronics, Spintronics and Photonics

Institute

Institute/Faculty

PHYSICS CODE: 03.03.02

Medical Physics

Bionanoengineering

Biophysics

CHEMISTRY CODE: 04.03.01

Analytical Chemistry. in collaboration with OINPE MEPH Institute of Engineering Physics for Biomedicine

of Engineering Physics

for Biomedicine

CHEMISTRY, PHYSICS AND MECHANICS OF MATERIALS CODE: 04.03.02

Nanomaterials for Biology and Medicine. in collaboration with OINPE MEPhI

Institute of Engineering Physics for Biomedicine

of Engineering Physics for Biomedicine

Institute

BIOLOGY CODE: 06.03.01

Radiobiology. in collaboration with OINPE MEPhI

Biomedical Research. in collaboration with OINPE MEPhI

COMPUTER SCIENCE AND ENGINEERING CODE: 09.03.01

Secure High Performance Computer Systems

Institute of Cyber Intelligence Systems

SOFTWARE ENGINEERING CODE: 09.03.04

Mathematical and Software Support for Computing Machines and Computer Networks Institute of Cyber Intelligence Systems

INFORMATION SECURITY CODE: 10.03.01

Security of Computer Systems

Institute of Cyber Intelligence Systems

Bachelor Degree

ELECTRONICS AND NANOELECTRONICS CODE: 11.03.04

Nanoelectronics, Spintronics and Photonics

Institute of Nanoengineering in Electronics, Spintronics and Photonics

Institute/Faculty

PHOTONICS AND OPTICAL COMPUTING CODE: 12.03.03

Photonics and Optical Information Technology	Institute of Laser	
Physics of Meta-Materials and Low-Dimensional Systems	Technologies	
Photonics of Nanostructures	Institute of Nanoengineering in Electronics, Spintronics	

BIOTECHNICAL SYSTEMS AND ENGINEERING CODE: 12.03.04

High-Tech Diagnostic Systems

Institute of Engineering Physics for Biomedicine

and Photonics

LASER TECHNIQUE AND LASER TECHNOLOGIES CODE: 12.03.05

Laser Systems and Technologies	Institute of Laser and Plasma Technologies
Quantum Metrology	

NUCLEAR POWER ENGINEERING AND THERMOPHYSICS CODE: 14.03.01

Maintenance, Repair and Installation of NPP Equipment.	Institute
in collaboration with OINPE MEPhI	of Nuclear Physics
	and Engineering

Operation of NPP. in collaboration with OINPE MEPhI

Nuclear Engineering.

in collaboration with OINPE MEPhI

HIGH TECH PLASMA AND ENERGY FACILITIES CODE: 16.03.02

 Laser Nuclear Fusion
 Institute of Laser

 Plasma Technologies and Controlled Nuclear Fusion
 Technologies

MATERIALS SCIENCE AND ENGINEERING CODE: 22.03.01

Physics of Materials and Processes

Institute of Nuclear Physics and Engineering

Bachelor Degree

SYSTEM	ANALYSIS	AND	MANAGEMENT CODE: 27.03.03

Major/program name

System Analysis and Life Cycle Management of Complex Systems

Faculty for Business Informatics and Integrated System Management

Institute of Financial

Institute of Financial and Economic Security

and Economic Security

Institute/Faculty

ECONOMICS CODE: 38.03.01

Accounting, Analysis and Audit

Financial Management

BUSINESS INFORMATICS CODE: 38.03.05

Technological Business. On paid basis

INTERNATIONAL RELATIONS CODE: 41.03.05

International Cooperation in Science & Technology and Industry

Institute of International Relations

Institute/Faculty

Specialist degree

Specialty

Specialization

NUCLEAR POWER PLANTS: DESIGN, OPERATION AND ENGINEERING CODE: 14.05.02

Radiation Safety of Nuclear Power PlantsInstituteDesign and Operation of Nuclear Power Plantsof Nuclear Physics
and Engineering

Control and Management Systems of Nuclear Power Plants

NUCLEAR REACTORS AND MATERIALS CODE: 14.05.01

Nuclear Reactors (Design and Production
of Fuel Elements and Assemblies of NPF)Faculty for Physics
and Technology

Nuclear Reactors (Innovative Nuclear Reactors)

Institute

of Nuclear Physics and Engineering

Direction

Specialist Degree

Specialization

Specialty

Institute/Faculty

ELECTRONICS AND AUTOMATION OF PHYSICS FACILITIES CODE: 14.05.04

	Charged Particles Accelerators for Radiation Technologies	Institute of Laser and Plasma Technologies	
	Automation and Information Measuring Systems for Physics Facilities. in collaboration with OINPE MEPhI	Institute of Nuclear Physics and Engineering	
	Micro and Nanoelectronic Instruments and Systems for Physics Facilities	Institute of Nanoengineering in Electronics, Spintronics and Photonics	
	Pulse Electronics and Electrophysics		
	Electronics of Physics Facilities (Nanoelectronic Instruments for Modern Physics Facilities)	_	
USE AND OPE FOR SPECIAL	RATION OF AUTOMATED SYSTEMS PURPOSES CODE: 09.05.01		
	Automated Systems of Data Processing and Control for Special Purposes	Institute of Cyber Intelligence Systems	
INFORMATION	ANALYSIS SECURITY SYTSEMS CODE: 10.05.04		
	Information Security of Financial and Economic Structures	Institute of Cyber Intelligence Systems	
SECURITY OF	INFORMATIONAL TECHNOLOGIES RCEMENT CODE: 10.05.05		
	Information and Analytical Support for Law Enforcement. On paid basis	Institute of Financial and Economic Security	
GENERAL MED	DICINE CODE: 31.05.01		
	General Medicine. in collaboration with OINPE MEPhI	Institute of Engineering Physics for Biomedicine	
ECONOMIC SI	ECURITY CODE: 38.05.01		
	Judicial Economic Expertise	Institute of Financial	
	Economic and Legal Support of Economic Security	- and Economic Security	

Financial Credit Institutions Activity for Bank Services of State Bodies Providing Security of Russian Federation



The University trains candidates for Master's degree for Russia and foreign countries in the most relevant areas of fundamental and applied sciences and modern technology: nuclear physics and cosmophysics, laser and plasma technologies, micro- and nanoelectronics, photonics, nuclear and computer-aided medicine, bionanomedicine, computer sciences, robotics, software engineering, information security, etc. Master Degree Programs of NRNU MEPhI are an excellent springboard to a career in science, business and public service.

Oleg V. Nagornov, Vice-Rector, Doctor of Physical and Mathematical Sciences, Professor

Master's degree

Code	Direction	Institute/Faculty	
03.04.01 Physics		Institute of Nuclear	
14.04.01	Nuclear Power Engineering and Thermophysics	Physics and Engineering	
14.04.02	Nuclear Physics and Engineering		
22.04.01	Materials Science and Engineering		
03.04.01	Applied Mathematics and Physics	Institute of Laser	
12.04.05	Laser Technique and Laser Technology	and Plasma Technologies	
14.04.02	Nuclear Physics and Engineering		
16.04.02	High-Tech Plasma and Energy Facilities		
12.04.03	Photonics and Optical Computing		
01.04.02	Applied Mathematics and Informatics	Institute	
03.04.02	Physics	of Nanoengineering	
11.04.04	Electronics and Nanoelectronics	and Photonics	
14.04.02	Nuclear Physics and Engineering		
12.04.03	Photonics and Optical Computing		
03.04.01	Physics	Institute	
14.04.02	Nuclear Physics and Engineering	of Engineering Physics for Biomedicine	
12.04.04	Biotechnical Systems and Engineering		
01.04.02	Applied Mathematics and Informatics	Institute of Cyber	
09.04.01	Computer Science and Engineering	Intelligence Systems	
09.04.04	Software Engineering		
10.04.01	Information Security		
14.04.02	Nuclear Physics and Engineering	Faculty for Physics and Technology	
15.04.05	Design and Maintenance of Machinery Manufacturing		
38.04.01	Economics	Institute of Financial and Economic Security	
38.04.05	Business Informatics		
41.04.05	International Relations	Institute of International Relations	
09.04.03	Applied Informatics	Faculty	
27.04.03	System Analysis and Management	for Business Informatics and Integrated System Management	
38.04.02	Management		
38.04.04	State and Local Government		
38.04.05	Business Informatics		

Образовательные программы

Postgraduate degree

Code	Direction	Institute/Faculty	
03.06.01 Physics and Astronomy		Institute of Nuclear	
09.06.01	Computer Science and Engineering	Physics and Engineering	
13.06.01	Electric and Thermal Engineering		
14.06.01	Nuclear, Thermal and Renewable Power Generation and Associated Technologies		
22.06.01	Materials Engineering		
24.06.01	Aerospace Engineering		
27.06.01	Control of Engineering Systems		
03.06.01	Physics and Astronomy	Institute of Laser	
16.06.01	Physical and Engineering Sciences and Technologies	and Plasma Technologies	
03.06.01	Physics and Astronomy	Institute of Nanoengineering	
09.06.01	Computer Science and Engineering	in Electronics, Spintronics	
11.06.01	Electronics, Radio Engineering and Communications Systems		
03.06.01	Physics and Astronomy	Institute of Engineering	
04.06.01	Chemical Sciences	Physics for Biomedicine	
06.06.01	Biological Sciences		
27.06.01	Control of Engineering Systems		
12.06.01	Photonics, Instrumentation, Optical and Biotechnical Communication Systems		
01.06.01	Mathematics and Mechanics	Institute of Cyber	
09.06.01	Computer Science and Engineering	Intelligence Systems	
10.06.01	Information Security		
03.06.01	Physics and Astronomy	Faculty for Physics	
12.06.01	Photonics, Instrumentation, Optical and Biotechnical Systems and Engineering	and Technology	
09.06.01	Computer Science and Engineering	Faculty for Business Informatics and Integrated System Management	
38.06.01	Economics		
38.06.01	Economics	Institute of Financial and Economic Security	
38.06.01	Economics	Institute of International Relations	

International Cooperation in Education



Over the past few years, the National Research Nuclear University "MEPhl" has significantly expanded its network of partnerships with leading foreign universities, laboratories and associations. Currently, about 1,300 foreign students from 49 countries of the world are studying at the University. In the framework of services export in the field of nuclear education MEPhl trains specialists for partner countries of SC «Rosatom». Nowadays, students, postgraduate students and academic staff from the leading foreign research and education centers undertake traineeships at the university.

Nikolay M. Dmitriev, Vice-Rector, Doctor of Sociological Sciences, Professor

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- Yerevan State University
- National Polytechnic University of Armenia

BANGLADESH

- Bangladesh University of Engineering and Technology
 - **BELGIUM**
- Ghent University

BRAZIL

 University of Espirito Santo UK

Department

VIETNAM

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of Physics in the University of Oxford

Hanoi University

of Science and

Technology

GERMANY

of Frankfurt

of Tubingen

Regensburg

and Arts

University of Cologne

University

Goethe University

Technical University

of Applied Sciences

Hannover University

of Applied Sciences

University of Surrey

John Adams Institute,

University of Da Nang

- GREECE
- Ionian UniversityNational Technical

University of Athens

- ,
- EGYPT Egypt University
- of Science and Technology

SPAIN

- University of Santiago de Compostela
 - ITALY
- University of Turin
- Polytechnic University of Turin
- University of Florence
- University of Rome «Tor Vergata»
 - University of Brescia

KAZAKHSTAN

- East Kazakhstan State Technical University named after D.Serikbayev
- Al-Farabi Kazakh National University
- Almaty University of Power Engineering and Telecommunications
- Eurasian National University named after L.N.Gumilev
 - **KYRGYSTAN**
- Arabaev Kyrgyz State University
- Kyrgyz State Technical University named after I. Razzakov



CHINA

- Tsinghua University
- Beijing University of Technology
- Harbin Engineering University
- Hangzhou Dianzi University

NETHERLANDS

- University of Twente
- Delft University of Technology

NORWAY

University of Oslo

REPUBLIC OF KOREA

 Seoul National University

HUNGARY

Polytechnic University of Budapest

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SERBIA

University of Novi Sad

USA

- Massachusetts Institute of Technology
- Texas A&M International University
- University of Nebraska-Lincoln
- University of Illinois
- University of Rochester

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 University of California

UZBEKISTAN

 National University of Uzbekistan named by after Mirzo Ulugbek

FINLAND

 Tampere University of Technology

FRANCE

- University of Nantes
- University of Savoy
- Joseph Fourier University

MONTENEGRO

 University of Montenegro

CZECH REPUBLIC

• University of Pardubice

JAPAN

- Tokyo Institute of Technology
- Waseda University

Export of MEPhI educational programs to target markets overseas



The share of foreign students



The share of foreign professors, lecturers and researchers





Training at Foreign and Research Centers

Direction	Research and Education Center				
NUCLEAR REACTORS	Tokyo Institute of Technology, Japan				
AND MATERIALS	Brookhaven National Laboratory, USA				
NUCLEAR POWER PLANTS:	Texas A&M International University, USA				
DESIGN, OPERATION	Belarusian State University, Belarus				
AND ENGINEERING	Belarusian State Technological University, Belarus				
	Aalto University, Finland				
PHYSICS	CERN, Switzerland				
	Gran Sasso National Laboratory, Italy				
	University of Florence, Italy				
	University of Rome, Italy				
	Research Center Juelich, Germany				
	Brookhaven National Laboratory, USA				
ELECTRONICS AND AUTOMATION	University of Tuebingen, Germany				
OF PHYSICS FACILITIES	University of Cologne, Germany				
	Regensburg University of Applied Sciences, Germany				
	University of Brescia, Italy				
APPLIED MATHEMATICS	CERN, Switzerland				
AND PHYSICS	Ludwig Maximilian University of Munich, Germany				
	Polytechnic School, France				
	University of Rostock, Germany				
APPLIED MATHEMATICS	Texas A&M International University, USA				
AND INFORMATICS	Stony Brook University, USA				
COMPUTER SCIENCE AND ENGINEERING	Keele University, UK				
SOFTWARE ENGINEERING	Karlsruhe Institute of Technology, Germany				
INFORMATION SECURITY	University of Surrey, UK				
	CERN, Switzerland				

Direction	Research and Education Center

MATERIALS SCIENCE AND ENGINEERING

NUCLEAR PHYSICS AND ENGINEERING

LASER TECHNIQUE

HIGH-TECH PLASMA AND ENERGY FACILITIES

AND NANOELECTRONICS

AND OPTICAL COMPUTING

AND LASER TECHNOLOGY

ELECTRONICS

PHOTONICS

University of Reims, France

University of Nantes, France

Massachusetts Institute of Technology, USA

Institute for Energy Technology, Norway

CERN, Switzerland

Graduate School of Engineering Sciences at Kyushu University, Japan

Institute of Laser Engineering (ILE), Osaka University, Japan

Institute of High Energy Physics, Chinese Academy of Sciences, China

Institute for Crystal Growth, Germany

University of Rome, Italy

ITER, France

Research Center Juelich, Germany

Max Planck Institute for Plasma Physics, Germany

German Electron Synchrotron DESY, Germany

Ludwig Maximilian University of Munich, Germany

GSI Helmholtz Centre for Heavy Ion Research, Germany

European Synchrotron Radiation Facility ESRF, France

Synchrotron Radiation Facility MAX-lab, Sweden

Synchrotron Facility SOLEIL, France

University of Bordeaux, France

University of King Abdulaziz, Saudi Arabia

Laboratory LPSC (Laboratory for Subatomic Physics and Cosmology), France

Aalto University, Finland

Institute of Plasma Physics, Chezh Republic

University of Da Nang, Vietnam

Student life



Student life is not only end-of-term assignments and exams. It opens up the possibility to make incredible breakthroughs, to implement ingenious ideas, to make unique discoveries! To make dreams come true the Associated Student Body (ASB), established in MEPhI, strives to help students. The ASB is composed of the best student representatives. Research and innovation activities, students' self-government, creative teams, construction teams, volunteer movement, participation in sports, the opportunity to try out the role of a journalist, a TV or radio-presenter — the University creates all favorable conditions for strengthening creative potential of students.

Have you already made a choice?

- Student science: student scientific society; English-club; intellectual games club
- Student government: associated student body; dormitory council; international friendship club.
- Student creative activities: center for cultural projects; academic male choir of NRNU MEPhI; academic choir Carpe Diem; Vocal Studio Quanto di Stella; fine arts center.

- Students mediacenter.
- Volunteer movement «Good Works service of NRNU MEPhl».
- Volunteer center.
- Movement of students' teams.
- Students Sports Club «Reactor».
- Cultural and Historic center «Our heritage».

Sports



Studying at MEPhI is a great opportunity to take up sports. There is a choice of about 30 various sports clubs from popular disciplines, such as athletics, aerobics&fitness, martial arts, rugby, hockey, football, volleyball to climbing, sailing and badminton. The university has games and gymnastics halls, two sambo halls, a hall for table tennis, two outdoor tennis courts with artificial turf, a gym, as well as outdoor plane constructions.

GENERAL INFORMATION

Can't decide what to choose or do you want to try yourself as a sports manager? MEPhI Center for Physical Education and Sports and Students Sports Club "Reactor" will be eager to provide you with all necessary assistance.

The Sports Facilities of MEPhI hold a series of traditional competitions: International Tournament on sambo for the "Prize of Space Conquerors", ski competitions "Race of Generations", athletics cross "Kolomenskie Hills", Festival of sports aerobics, Spartakiad on basketball, volleyball, sambo, rugby among Universities of Moscow and Kids City Competitions on sambo.

Admission dates and deadlines for 2018/19 academic /ear



Find out more information on applying and admissions dates and deadlines in the MEPhl. Note that the dates of admission to the budget places on bachelor's programs/ specialist's programs coincide for all universities of Russia.

> Vladimir I. Skrvtnvv. Executive Secretary of the Admission Committee

The beginning of the application period for admission of documents for Bachelor's Degree and Specialist's Degree programs.

The application deadline for admission of documents for Bachelor's Degree and Specialist's Degree programs from persons entering on the results of other entrance examinations conducted by MEPhI on its own.

The deadline for entrance examinations conducted by MEPhI on its own.

The application deadline for admission of documents for Bachelor's Degree and Specialist's Degree programs from persons entering without passing entrance examinations (on the basis of USE results) conducted by MEPhI on its own.

The application deadline for agreement to admission from persons entering without entrance examinations: entering the place within quota, if these persons have applied at the same time for admission to the two or more higher education institutions.

15 June | 11 July

26 July

8 July

The application deadline for admission of documents for Bachelor's Degree and Specialist's Degree programs from persons entering on the results of additional entrance examinations of creative and (or) a professional character.

27 July

Lists of applicants are available on the official website.

28 July

29 July

Issuance of an order (orders) for admission of persons who submitted agreement to admission, from the number of applicants entering without entrance examinations. who enters within quota.

The beginning of the application period for admission of documents for Master's Degree programs

15 May

The application deadline for admission of documents for Master's Degree programs The deadline for entrance examinations for Master's Degree programs

1 August

5 August

The application deadline for agreement to admission from persons, included in the lists of applicants to the main competitive places and wishing to be enrolled at the first stage of admission to the main competitive places.

Within each list of applicants, there are persons, who are singled out, applied for agreement to admission before 80% of the main competitive places are filled (with rounding-off). The application deadline for agreement to admission from persons, included in the lists of applicants to the main competitive places.

Within each list of applicants, there are persons, who are singled out, applied for agreement to admission before 100% of the main competitive places are filled. The application deadline for admission of documents on training based on agreements of providing educational services on a paid basis for Bachelor's Degree, Specialist's Degree and Master's Degree programs from applicants passing entrance examinations. The application deadline for admission of documents on training based on agreements of providing educational services on a paid basis for Bachelor's Degree, Specialist's Degree and Master's Degree programs From apllicants having passed entrance examinations.

3 August

Issuance of an

who submitted

agreement to

are filled.

order (orders) for

admission, before

competitive places

80% of the main

admission of persons

1 August

8 August

6 August

Issuance of an order (orders) for admission of persons who submitted agreement to admission, before 100% of the main competitive places are filled.

25 August

31 August

30 August

The deadline for entrance examinations for admission on training based on agreements of providing educational services on a paid basis.

Contacts

National Research Nuclear University MEPhI



- eng.mephi.ru
- (f) www.facebook.com/UniversityMEPhI

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Address of the University: Moscow, Kashirskoe shosse, 31 How to get to us: Metro station «Kashirskaya», next stop by bus № 275, 280, 298, 738, 742, 907; or Trolley bus № 71 To the bus stop «MEPhI». Next stop from the underground or it will take you 10–15 minutes on foot Hot-line for applicants: +7 800 775 15 51 (free call in Russia) +7 495 785 55 25 (free call in Moscow) Official site: **mephi.ru** Admission office: **admission.mephi.ru** Net-school: **school.mephi.ru**



Kashirskaya