Master programs taught in English: National Research Nuclear University MEPhI

General Information	Courses	Graduates' areas of activity
Master's Degree Program ***"Methods of mathematical physics and mathematical modeling"*** The program purpose: Preparation of the highly qualified personnel with deep theoretical and practical knowledge and skills in the field of mathematical physics, mathematical modeling and applied computer scince. **https://mephi.ru/eng/education/applied-mathematics-and-informatics/master-s-programs.php**	Features of curriculum: Master of the program gets in-depth mathematical training in the field of methods of computational mathematics, methods of mathematical modelingand nonlinear mathematical physics, techniques of the time-series analysis, mathematical statistics, theory of differential equations, data analysis, symbolic sequences and another brancehs of math. A graduate of the program will have a universal and subject-specialized competencies, promote social mobility, stability in the labor market, and opportunities for professional growth. The main competitive advantage of the master's program are: - The presence of a unique specialized courses; - A large number of courses on information technology (IT); - Highly - qualified teachers; - Training is conducted in small groups.	Foreign and Russian research centers and universities; Enterprise State Corporation Rosatom; research institutes of the Russian Academy of Sciences (RAS) and other academic and research organization of high-tech industries of the Russian Federation, as well as large IT-companies and corporations.
Master's Degree Program ***"High and ultra high energy elementary particle physics"*** **Goals of the Program (brief description of the Program):** Training of graduates capable of working in the field of elementary particle physics and high energy cosmic rays. Graduate should possess general and special knowledge. Manager of the Program: Petrukhin A.A., e-mail: AAPetrukhin@mephi.ru https://mephi.ru/eng/education/physics/master-s-programs.php		Graduates usually employed by Russian academic centres, RAS institutions and by other organisations.
Master's Degree Program ***"Strategic Management of the Company and the Business Excellence Models"***		**Areas and objects of professional activity of graduates**. The Master's program "Strategic Management of the Company and the Business Excellence

The program is aimed at preparing competitive and highly qualified specialists capable of using contemporary *instruments of general* and strategic management, developing and implementing *business strategies in industrial and administrative structures at all levels of management, at r*esearch organizations, educational institutions of higher and further professional *education. The program is focused on basic and applied research aimed at developing and implementing high-tech projects in the field of innovation-based economy,* including the atomic industry. https://mephi.ru/eng/education/management/master-s-programs.php		Models" is aimed at preparing highly qualified executives, specialists, and advisers in the field of organizational management, economic analysis, development of managerial solutions, and advisory activity at enterprises of various forms of ownership, at state, regional, and municipal structures, research organizations, and educational institutions of higher and further professional *education.*
Master's Degree Program "Business Informatics in High-Technology Industry" Program target: training high level professionals possessing modern information technologies and economical and mathematical research methods for modeling business process and corporative information management, strategic forecasting and innovative project management under conditions of globalization of economics, finances, and business. Program manager: A.I. Guseva, Professor, Doctor of Technical Sciences, corresponding member of the Russian Academy of Natural History, acting director of the EAI, the co-author of more than 250 research and methodical works including certificates of electronic educational resources. https://mephi.ru/eng/education/business-informatics/master-s-programs.php		
Master's Degree Program "Cryptology in Information Security Systems" **The aim of the educational program** is to train highly qualified experts accomplishing various tasks concerned with application of cryptographic techniques and tools in different computer-aided systems in order to ensure information security at critical objects including nuclear industry.	The master's program includes the following specialized disciplines: systems of computer imposition, the indistinct logic and soft computations, cryptanalysis, quantum cryptography, the public key infrastructure, software security, programming of drivers, security of web technologies, the development and the analysis of computing algorithms for cryptography.	

https://mephi.ru/eng/education/information-security/master-s-programs.php		
Master's Degree Program ***"Safe Nuclear Materials Management"*** Main purpose of the MS Graduate Program "Safe Nuclear Materials Management" consists in acquiring the higher professional education that gives to the graduates (Masters of Science) an opportunity to work successfully in the areas related with nuclear and radiation physics, nuclear materials (NM) and nuclear technologies, safe and secure handling of nuclear materials, including their physical protection, control and accountability. https://mephi.ru/eng/education/nuclear-physics-and-technologies/master-s-programs.php	• Problems of nuclear power industry; • Legislative and international aspects of NM management; • Fundamentals of systems for NM physical protection, control and accountability. • Methods for vulnerability assessment and optimization of NM physical protection systems; • Methods and procedures for NM control and accountability; • Designing of physical protection systems; • Methods for NM control; • Methods and devices for NM measurements; • Applied mathematical statistics, etc.	The graduates are offered to work at research institutes and authorities of the State Corporation "Rosatom", as well as in international organizations involved into the projects on NM safety, security, and non-proliferation assurance.
Master's Degree Program ***"Physics of high-speed processes"*** Goal of program: to produce graduates capable of successfully working in the field of design, analysis and evaluation of safety, economy of current and future power plants, including nuclear. In addition, as a result of the development of the magister's program graduates should have a sufficient set of system analytical skills, project management skills, as well as leadership and communication qualities to work in a creative team. https://mephi.ru/eng/education/nuclear-physics-and-technologies/master-s-programs.php		The objects of professional activity of graduates: research and technology in the field of high-speed kinetic processes, industrial safety and environmental monitoring, the development of new technologies, including nanotechnology.
Master's Degree Program ***"Nanostructured Materials"*** The goal of the program is to prepare masters in the field of modern materials science, developments and investigations of the given structural-phase states, including nanostructured and nanocrystalline states, and their relations with the properties of structural and functional materials and structural elements of physical and energy facilities, as well as the development and improvement of the		**Sphere of professional activity of graduates:** Masters prepared under the program "Nanostructured materials" are primarily able to carry out on their own theoretical and experimental investigations for solving research and technological problems in the field of physical radiation materials science, having the knowledge and skills

modern technological processes for manufacture and treatment of materials; and to prepare a master to enter graduate school. https://mephi.ru/eng/education/materials-science-and-technologies-of-materials/master-s-programs.php		for development and synthesis of nanostructured materials (nanocrystals, thin films, nanotubes and nanowires, nanocomposites) and nanotechnologies for use in nuclear engineering and industry, computer design of nanomaterials with desired structures and properties, for self-use of highly modern laboratory and analytical equipment to investigate nanomaterials, for development of a nanostructure formation technology, and for providing of thermodynamic approaches to investigate nanosystems.
Master's Degree Program ***"Prospective Technologies in Materials Science"*** The goal of the program is to prepare masters in the field of modern materials science, development of prospective technologies to obtain and treat materials for formation of a desired structural-phase state, including technologies of ultrafast quenching of melts and obtaining of amorphous materials, ion-plasma technologies to modify structural and functional materials, electric pulse compaction of powder materials; and to prepare a master to enter the graduate school.	The main professional disciplines are special chapters of higher mathematics, theoretical solid-state physics, nuclear physics, computer simulation in materials science, modeling of technological processes, physical and power plants for space purposes, laser and micro-technologies, materials science of physical and energy plants, methods and technologies of nondestructive testing.	**Sphere of professional activity of graduates:** Masters prepared under the "Prospective Technologies in Materials Science" program are primarily able to carry out their own theoretical and experimental investigations for solving research and technological problems in the field of physical materials science, having the knowledge and skills to work on the development and modernization of technologies used in the development and production of new structural and nuclear materials and manufacture of structural elements of physical and nuclear power plants and reactors of all generations, the use of computers and information technologies for modernization and modeling of technological processes, for analysis of the complete technological cycle for production of materials and articles, comparing the advantages and disadvantages of possible variants,

		choosing the technology that can provide the required level of quality, for prediction of the competitiveness of material and technology on the basis of information search, and for highly skilled support of the technological processes of obtaining and treatment of materials. Preparation of masters will allow them to work successfully in research, technology, design and management fields of modern science and techniques, the development of which involves prospective technologies. After graduation, they have the possibility of continuing their education in graduate school of "Physics of Condensed State."
Master's Degree Program ***"Secure Automated Data Processing and Control Systems"*** Program purpose is to train highly qualified experts in the field of automated data processing and control systems that meet the modern information security requirements, for employment in defense industry, energy sector, research organizations and government agencies https://mephi.ru/eng/education/computer-science-and-engineering/master-s-programs.php	The curriculum of the program is based on the fundamental training of students in the core subjects, as well as academic and practical experience of the department, gained in the course of various projects for creation of SADPCS for various branches of the national economy and defense. Students acquire skills of formalization of intellectual problems, knowledge of scientific, engineering and technological software. Much attention is paid to the study and practice of the project management and design to create SADPCS. The curriculum of the program includes intensive training in circuit design disciplines, programming, operating systems, database systems, analysis and design of secure automated systems. The curriculum includes a large amount of scientific research (R&D) work performed by future researchers and scientists. The skills acquired by the students during the study of professional disciplines included in the basic and optional parts of the program, as well as during carrying out of	Career opportunities for the program graduates: The professional activities of graduates are focused on secure automated data processing and control systems (SADPCS); computing systems and networks; methods and tools for design, modeling, experimental research, and control of secure automated systems; and mathematical, informational, technical, linguistic, software, ergonomic, organizational, and legal support of specialized automated systems. Graduates can pursue a career at research institutes of the Russian Academy of Sciences, nuclear and other high-technology industries

	research projects, prepare the graduates for successful work in all high-technology industry sectors.	
Master's Degree Program "Highly-Critical Cybernetic Systems Development Technologies" Curriculum objective: Highly-qualified master training, with special background in the field of cybernetic system development technologies, with the main intension of supplying staff to organizations in high-tech fields of Russian science and industry. The professional line includes design and implementation, as well as maintenance, of information systems and software products in the field of applied mathematics and computer science for state, industrial and commercial organizations: • organizations of the State Atomic Energy Corporation "Rosatom;" • computing centers and data centers; • scientific-industrial corporations; • high-school education centers Graduates earn the following abilities: • introducing new information technologies to the organization infrastructure; • developing software tools for systems for ERP software quality management systems; • business consulting and engineering. https://mephi.ru/eng/education/information-systems-and-technologies/master-s-programs.php		
Master's Degree Program "High-Tech Information Systems" **The purpose of the program** is the training of masters who have fundamental knowledge in the field of functional analysis, optimal control theory, and theory of numbers. Masters are capable of developing operating systems; they can deal with functional and logic programming. The educational program is also aimed at the Master in the field of robotics, design circuits, microwave electronics, quantum cryptography and quantum computing theory.		

https://mephi.ru/eng/education/information-systems-and-technologies/master-s-programs.php		