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Федеральное государственное автономное образовательное учреждение высшего образования  
«Российский университет дружбы народов имени Патриса Лумумбы»

Инженерная академия

Наименование основного учебного подразделения (ОУП) – разработчика программы)

Утверждена на заседании  
ученого совета ОУП  
протокол от 29 ноября 2023 г.  
№ 2022-08/23-11/3

## ПРОГРАММА ПОДГОТОВКИ НАУЧНЫХ И НАУЧНО-ПЕДАГОГИЧЕСКИХ КАДРОВ В АСПИРАНТУРЕ

Научная специальность:

**2.3.1. Системный анализ, управление и обработка информации, статистика**

(код и наименование научной специальности)

Направленность (профиль):

**System Analysis, Control and Information Processing / Системный анализ,  
управление и обработка информации (англ.)**

(наименование программы подготовки научных и научно-педагогических кадров)

Программа подготовки научных и научно-педагогических кадров в аспирантуре  
разработана в соответствии с требованиями:

**СУТ РУДН**, утвержденных приказом ректора от 09 марта 2022 г. № 139

Срок освоения программы подготовки научных и научно-педагогических кадров в  
аспирантуре:

**3 года**

(очная форма обучения)

Сведения об особенностях реализации программы: реализуется на английском языке.

СОГЛАСОВАНО:

Руководитель программы  
Разумный Ю. Н.

(подпись)

Начальник УОП  
Воробьева А. А.

(подпись)

Директор академии  
Разумный Ю. Н.

(подпись)

Начальник ДАД  
Борисова А. С.

(подпись)

2024 г.

## **1. POSTGRADUATE PROGRAM GOAL (MISSION)**

The purpose of the program is to create conditions for acquiring the level of knowledge, skills, experience and preparation for the defense of a dissertation for the degree of Candidate of Technical Sciences necessary for professional activity in the field of system analysis, control and data processing, as well as conducting scientific research in the interests of the development of science, humanity and humanitarian values.

## **2. BRIEF SUMMARY OF THE PROGRAM**

Research activities within the framework of the training program cover the fields of computer science, computer, information, robotic and intelligent systems, methods of accumulation and processing of information, algorithms, human-machine interfaces, the development of new mathematical methods and tools to support intelligent data processing, the development of information and automated design and control systems in application to various subject areas.

The program is implemented in full-time education in accordance with the license for the right to carry out educational activities.

The standard term for mastering the training program for scientific and scientific-pedagogical personnel in postgraduate 2.3.1 "System analysis, management and information processing" in full-time education is 3 years.

The volume of the postgraduate program is 180 credits (hereinafter referred to as credits). The volume of the postgraduate program implemented in one academic year is 60 credits.

## **3. THE NEED OF THE LABOR MARKET FOR GRADUATES WHO HAVE MASTERED THE POSTGRADUATE PROGRAM**

In the course of training, graduate students receive theoretical and practical training, research and scientific and pedagogical skills that allow them to work effectively after graduation at enterprises of various fields and industries in leadership positions, as well as in research and educational organizations.

Graduates who have mastered this program are focused on working in Russian and international companies, enterprises, educational institutions, research organizations in various fields of industry related to the research and design of information systems, automation of complex process control.

The field of professional activity of graduates who have mastered the postgraduate program includes the fields of science, technology, technology and pedagogy, covering a set of tasks in the field of information technology and telecommunications, including the development of theory, creation, implementation and operation of promising computer systems, networks and complexes, mathematical and software.

In the professional sphere, the main consumers of the training program for scientific and scientific-pedagogical personnel are such Russian and international enterprises as:

Federal State Institution "Federal Research Center Institute of Applied Mathematics named after M.V. Keldysh of the Russian Academy of Sciences"

Federal State Budgetary Institution of Science V. A. Trapeznikov Institute of Management Problems of the Russian Academy of Sciences (IPU RAS);

Federal State Unitary Enterprise "Central Research Institute of Mechanical Engineering" (FSUE TsNIIMash, Korolev)

Federal State Autonomous Educational Institution of Higher Education "Peoples' Friendship University of Russia";

Yandex LLC;

Kaspersky Lab;

NGO Echelon

#### 4. REQUIREMENTS FOR AN APPLICANT ENTERING THE PROGRAM

Admission to the program is subject to Admission Rules approved by the relevant local regulatory act and publicly available on the official website of the RUDN.

#### 5. STRUCTURE AND SCOPE OF THE PROGRAM FOR THE TRAINING OF SCIENTIFIC AND SCIENTIFIC-PEDAGOGICAL PERSONNEL IN GRADUATE SCHOOL

The structure and scope of the postgraduate program – the period of mastering 3 years in full-time.

<b>№</b>	<b>Structure of the Postgraduate Program</b>	<b>The scope of the PhD program in CU</b>
1. Scientific component		150
1.1.	Scientific Research	126
1.2.	Preparation of publications and (or) applications for patents for inventions, utility models, industrial designs, certificates of state registration of computer programs, databases, topologies of integrated circuits /	18
1.3.	Intermediate certification	6
2. Postgraduate part		24
2.1.	Disciplines (modules)	13
2.2.	Pedagogical Practice	5
2.3.	Intermediate certification in disciplines (modules) and practice	6
3. Final examination		6
3.1	Evaluation of the thesis for its compliance with the established criteria	6
Scope of the Postgraduate Program		180

#### 6. CHARACTERISTICS OF THE GRADUATE'S PROFESSIONAL ACTIVITY

##### 6.1 Area of professional activity

The field of professional activity of graduates who have mastered the postgraduate program includes the fields of science, technology, technology and pedagogy, covering a set of tasks in the field of information technology and telecommunications, including the development of theory, creation, implementation and operation of promising computer systems, networks and complexes, mathematical and software.

##### 6.2 Objects of professional activity

The objects of professional activity of graduates who have mastered the postgraduate program are the chosen field of scientific knowledge, as well as scientific tasks of an interdisciplinary nature, containing:

- computers, complexes, systems and networks;
- software of computer equipment and automated systems (programs, software complexes and systems);

– mathematical, informational, technical, software of automated information, computing, designing and control systems;

– technologies for the development of computer hardware and software products.

The chosen field of scientific knowledge is system analysis, management and information processing.

### 6.3 Types of professional activity

The postgraduate program is aimed at mastering all types of professional activities for which the graduate is preparing.

During the development and implementation of the postgraduate program, the scientific supervisor of the program focuses on the specific type (types) of professional activity for which the graduate student is preparing, based on the needs of the labor market, research and material resources of the structural units involved in the implementation of the training program for scientific and scientific-pedagogical personnel.

Within the framework of this field of training, a postgraduate student is preparing for research activities in universities, research and production enterprises of any form of ownership, as well as for teaching at a university.

Types of professional activities for which graduates who have mastered the postgraduate program are preparing:

– research activities in the field of information technology and telecommunications, the creation of elements and devices of computer technology based on new physical and technical principles, methods of processing and accumulation of information, algorithms, programs, programming languages and human-machine interfaces, the development of new mathematical methods and tools to support intelligent data processing, the development of information and automated systems design and management in application to various subject areas;

– teaching activities in educational programs of higher education.

### 6.4 Tasks of professional activity

A graduate who has mastered the postgraduate program, in accordance with the types of professional activities that the educational program is focused on, is ready to solve the following professional tasks:

– independent (including managerial) research activities that require extensive fundamental training in modern areas of management of technical systems, design of intelligent and information management systems, deep specialized training in the chosen direction, proficiency in modern research methods;

– scientific and pedagogical work in higher and secondary specialized educational institutions.

## 7. PLACE OF IMPLEMENTATION OF THE POSTGRADUATE PROGRAM

7.1. The postgraduate program is implemented by the Federal State Educational Institution "Peoples' Friendship University of Russia".

7.2. Information about the planned bases for conducting practices and (or) performing scientific research

<b>Internship*</b>	<b>Internship location</b> ( <i>organisation name and location</i> )
Orientation Practice (introductory, intramural)	Federal State Unitary Enterprise "Central Research Institute of Mechanical Engineering" (FGUA TsNIIMash, Korolev)
Technological (advanced field internship, industrial, extramural)	Federal State Institution "Federal Research Center Institute of Applied Mathematics named after M.V. Keldysh of the Russian Academy of Sciences"

## 8. FEATURES OF THE IMPLEMENTATION OF THE POSTGRADUATE PROGRAM

- 8.1. The postgraduate program is implemented with elements of distance learning technologies, implying the possibility of conducting lectures using MS Teams.
- 8.2. The language of the postgraduate program is Russian.
- 8.3. The program does not provide for the training of persons with disabilities and persons with disabilities.