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ФИО: Ястребов Олег Александрович
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**Federal State Autonomous Educational Institution of Higher Education
"Peoples' Friendship University of Russia named after Patrice Lumumba"**

Academy of Engineering

(name of the main educational unit (MEU) that developed the educational program of higher education)

WORKING PROGRAM OF THE DISCIPLINE

INTRODUCTION TO THE SPECIALTY

(name of discipline/module)

Recommended for the field of study/specialty:

27.03.04 CONTROL IN TECHNICAL SYSTEMS

(code and name of the training area/specialty)

The discipline is mastered within the framework of the implementation of the main professional educational program of higher education (EP HE):

DATA SCIENCE AND SPACE SYSTEMS

(name (profile/specialization) of the educational institution of higher education)

1. THE GOAL OF MASTERING THE DISCIPLINE

The course "Introduction to the Specialty" is part of the bachelor's program "Data Science and Space Systems" in the direction 27.03.04 "Control in Technical Systems" and is studied in the 1st semester of the 1st year. The course is implemented by the Department of Mechanics and Control Processes. The course consists of 3 sections and 12 topics and is aimed at studying the basics of professional activity, as well as the main trends in the development of intelligent systems and cybersecurity systems.

The purpose of mastering the discipline is to become familiar with the history of the emergence of information technologies, cybersecurity systems and personalities, an overview of the current state of this industry and an overview of the main trends in the development of the professional industry.

2. REQUIREMENTS TO THE RESULTS OF MASTERING THE DISCIPLINE

Mastering the discipline "Introduction to the specialty" is aimed at developing the following competencies (parts of competencies) in students:

Table 2.1. List of competencies developed in students while mastering the discipline (results of mastering the discipline)

| Cipher | Competence | Indicators of Competence Achievement (within the framework of this discipline) |
|--------|---|--|
| UC-1 | Able to search, critically analyze and synthesize information, apply a systematic approach to solving assigned tasks | UC-1.1 Analyzes the task, identifying its basic components; UC-1.2 Defines and ranks the information required to solve the given problem; UC-1.3 Searches for information to solve the assigned task using various types of requests; UC-1.4 Works with scientific texts, distinguishes facts from opinions, interpretations, assessments and substantiates his conclusions using the philosophical conceptual apparatus; UC-1.5 Analyzes and contextually processes information to solve assigned tasks while forming his own opinions and judgments; UC-1.6 Suggests options for solving the problem, analyzes the possible consequences of their use; UC-1.7 Analyzes ways of solving problems of ideological, moral and personal nature based on the use of basic philosophical ideas and categories in their historical development and socio-cultural context; |
| UC-6 | Able to manage their time, build and implement a trajectory of self-development based on the principles of lifelong education | UC-6.1 Controls the amount of time spent on specific activities; UC-6.2 Develops tools and methods for time control when completing specific tasks, projects, and goals; UC-6.3 Analyzes his resources and their limits (personal, situational, time, etc.) for the successful completion of the assigned task; UC-6.4 Finds and uses sources of additional information to improve the level of general and professional knowledge; UC-6.5 Analyzes the main opportunities and tools of continuous education in relation to one's own interests and needs, taking into account conditions, resources, personal capabilities, stages of career growth, time perspective for the development of activities and the requirements of the labor market; UC-6.6 Defines the tasks of self-development, goals and priorities of professional growth; UC-6.7 Distributes tasks into long-, medium- and short-term ones with justification of their relevance and analysis of resources for their implementation; |

3. PLACE OF THE DISCIPLINE IN THE STRUCTURE OF THE EDUCATIONAL EDUCATION

Discipline "Introduction to the specialty" refers to the mandatory part of block 1 "Disciplines (modules)" of the educational program of higher education.

As part of the higher education program, students also master other disciplines and/or practices that contribute to the achievement of the planned results of mastering the discipline "Introduction to the Specialty".

Table 3.1. List of components of the educational program of higher education that contribute to the achievement of the planned results of mastering the discipline

| Cipher | Name of competence | Previous courses/modules, practices* | Subsequent disciplines/modules, practices* |
|--------|---|--------------------------------------|--|
| UC-1 | Able to search, critically analyze and synthesize information, apply a systematic approach to solving assigned tasks | | Research work / Scientific research work; Technological Training; Undergraduate Training; Philosophy; Jurisprudence; <i>Business Ethics**</i> ; <i>Sociology**</i> ; <i>Cultural Studies**</i> ; |
| UC-6 | Able to manage their time, build and implement a trajectory of self-development based on the principles of lifelong education | | Physical Education; Fundamentals of Project Activities; Fundamentals of Engineering Economics and Control; Psychology and Pedagogy; Philosophy; Fundamentals of Artificial Intelligence; Research work / Scientific research work; Technological Training; Undergraduate Training; |

* - filled in in accordance with the competency matrix and the SUP EP HE

** - elective disciplines/practices

4. SCOPE OF THE DISCIPLINE AND TYPES OF STUDY WORK

The total workload of the course “Introduction to the Specialty” is 2 credit units.

Table 4.1. Types of educational work by periods of mastering the educational program of higher education for full-time education.

| Type of academic work | TOTAL,ac.h. | | Semester(s) |
|--|-------------------|-----------|-------------|
| | | | 1 |
| <i>Contact work, academic hours</i> | 36 | | 36 |
| Lectures (LC) | 0 | | 0 |
| Laboratory work (LW) | 0 | | 0 |
| Practical/seminar classes (SC) | 36 | | 36 |
| <i>Independent work of students, academic hours</i> | 36 | | 36 |
| <i>Control (exam/test with assessment), academic hours</i> | 0 | | 0 |
| General complexity of the discipline | ac.h. | 72 | 72 |
| | credit.ed. | 2 | 2 |

5. CONTENT OF THE DISCIPLINE

Table 5.1. Contents of the discipline (module) by types of academic work

| Section number | Name of the discipline section | Section Contents (Topics) | | Type of academic work* |
|----------------|--|---------------------------|--|------------------------|
| Section 1 | Introduction to the specialty | 1.1 | The purpose, objectives and structure of the course (introduction to the key values of the industry and profession for the development of science, economics and society; a brief overview of the sections and topics of the course, work formats in the semester, literary sources; explanations of the BRS) | LC, SC |
| | | 1.2 | History of the origin and development of information technologies and cybersecurity systems (the main stages of development of the industry and profession in Russia and the world) | LC, SC |
| | | 1.3 | Professional landscape (where and in what positions do graduates of the educational program in the direction of "Control in technical systems" work; the functionality of activities in the specialty in different positions; basic terms and definitions in the profession) | LC, SC |
| | | 1.4 | Requirements of modern employers from the IT industry for the level of training of graduates (requirements of professional standards, requirements for the "hard" and "soft skills" of graduates; standards of professional ethics, corporate culture and social responsibility) | LC, SC |
| | | 1.5 | Trajectory of obtaining higher education in IT professions (review of the structure and procedure for mastering the educational program; trajectory and principles of forming graduate competencies; review of key disciplines and practices of the educational program; relationship with related industries and specialties) | LC, SC |
| Section 2 | Outstanding leaders of the profession and their contribution to the development of the industry | 2.1 | Russian "pioneers" in the field of IT and cybersecurity | LC, SC |
| | | 2.2 | Modern Russian leaders in the field of IT and cybersecurity | LC, SC |
| | | 2.3 | Students meet with an outstanding Russian leader from the IT industry | LC, SC |
| Section 3 | Current state and trends of the industry development. Mechanisms and tools for development in the profession | 3.1 | Current state and main directions of development of the IT industry in Russia and the world. | LC, SC |
| | | 3.2 | Innovations and digitalization in the IT industry | LC, SC |
| | | 3.3 | Overview of labor markets in Russia and the world; possible paths of development in the profession: science and education, business, public sector, etc. | LC, SC |
| | | 3.4 | "Soft skills" for success in professional activities | LC, SC |

* - filled in only for FULL-TIME education: LC – lectures; LW – laboratory work; SC – practical/seminar classes.

6. LOGISTIC AND TECHNICAL SUPPORT OF DISCIPLINE

Table 6.1. Material and technical support of the discipline

| Audience type | Equipping the auditorium | Specialized educational/laboratory equipment, software and materials for mastering the discipline (if necessary) |
|----------------------|--|---|
| Seminar | An auditorium for conducting seminar-type classes, group and individual consultations, ongoing monitoring and midterm assessment, equipped with a set of specialized furniture and technical means for multimedia presentations. | |
| For independent work | A classroom for independent work of students (can be used for conducting seminars and consultations), equipped with a set of specialized furniture and computers with access to the Electronic Information System. | |

* - the audience for independent work of students MUST be indicated!

7. EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT OF THE DISCIPLINE

Main literature:

1. They say inIT Pays a Lot, Pravdina E., Bombora Publishing House, p. 384, 2021. ISBN 978-5-04-119275-4
2. How Computers Really Work, Justice Matthew, DMK Press, p. 428, 2022. ISBN 978-5-97060-973-6

Further reading:

1. Pages of the history of domestic IT / Comp. E.M. Proydakov. - M.: Alpina Publisher, 2015. T. 1. - 2015. - 265 p. ISBN 978-5-9614-4853-5
2. History of IT Business 1990s, Krotov N., Fedorov A.

Resources of the information and telecommunications network "Internet":

1. RUDN University EBS and third-party EBSs to which university students have access on the basis of concluded agreements

- Electronic library system of RUDN - ELS RUDN

<https://mega.rudn.ru/MegaPro/Web>

- Electronic library system "University library online" <http://www.biblioclub.ru>

- EBS "Yurait" <http://www.biblio-online.ru>

- Electronic Library System "Student Consultant" www.studentlibrary.ru

- EBS "Znaniy" <https://znaniy.ru/>

2. Databases and search engines

- Sage <https://journals.sagepub.com/>

- Springer Nature Link <https://link.springer.com/>

- Wiley Journal Database <https://onlinelibrary.wiley.com/>

- Scientometric database Lens.org <https://www.lens.org>

Educational and methodological materials for independent work of students in mastering a discipline/module:*

1. A course of lectures on the subject "Introduction to the specialty".

* - all educational and methodological materials for independent work of students are posted in accordance with the current procedure on the discipline page in TUIS!

DEVELOPER:

| | | |
|-----------------------------|------------------|--------------------------------|
| Associate Professor | | Saltykova Olga Alexandrovna |
| <i>Position, Department</i> | <i>Signature</i> | <i>Surname I.O.</i> |

**HEAD OF THE
DEPARTMENT:**

| | | |
|-----------------------------------|------------------|--------------------------|
| Head of Department | | Razumny Yuri Nikolaevich |
| <i>Position of the Department</i> | <i>Signature</i> | <i>Surname I.O.</i> |

HEAD OF THE EP HE:

| | | |
|-----------------------------|------------------|--------------------------|
| Head of Department | | Razumny Yuri Nikolaevich |
| <i>Position, Department</i> | <i>Signature</i> | <i>Surname I.O.</i> |