

Документ подписан простой электронной подписью
Информация о владельце:
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Должность: Ректор
Дата подписания: 04.02.2025 13:58:49
Уникальный программный ключ:
ca953a0120d891083f939673078ef1a989dae18a

**Federal State Autonomous Educational Institution for Higher Education
Peoples' Friendship University of Russia named after Patrice Lumumba
(RUDN University)**

ENGINEERING ACADEMY

(name of the main educational unit - program developer)

Department of Nanotechnology and Microsystem Engineering

(name of the basic educational unit - program developer)

RESEARCH PLAN

Scientific specialty:

2.2.9 Design and technology of instrumentation and radioelectronic equipment

(speciality code and title)

Practical training of students is carried out as part of the postgraduate program:

Design and technology of instrumentation and radioelectronic equipment

(higher education programme profile/specialisation title)

1. GOAL(s) OF SCIENTIFIC RESEARCHES

The purpose of carrying out scientific research (carrying out scientific activities) is to prepare a dissertation for the scientific degree of Candidate of Sciences for defense.

2. PLANNED RESULTS OF SCIENTIFIC RESEARCH

The solution of a scientific problem of importance for the development of the corresponding branch of science or the development of a new scientifically justified technical, technological or other solution of significant importance for the development of the country.

Preparation of the thesis for the defense includes the implementation of an individual plan of scientific activity, writing, registration and presentation of the thesis for the final attestation.

Plan of scientific activity includes a sample plan of scientific research, plan of dissertation preparation and publications, in which the main scientific results of the dissertation are set out, as well as a list of stages of mastering the scientific component of the graduate program, the distribution of these stages and the final certification of graduate students.

The plan of scientific activities of a particular student is approved in the individual plan of scientific activities of the graduate student, the requirements to which are established by the relevant local normative act of RUDN.

3. SCOPE OF SCIENTIFIC RESEARCH

The total labor input of scientific research is 210 credit units (7560 ac.h.).

4. STAGES OF SCIENTIFIC RESEARCH

| 4. STAGES OF SCIENTIFIC RESEARCH | | |
|--|---|------------------------|
| Name of stage | Content of the stage (topics, activities) | Labor intensity, ac.h. |
| 1 year | | |
| Postgraduate research activities aimed at preparing a dissertation for defense | Discussion with the supervisor of the concept and approval of the topic of the dissertation research | 1476 |
| | Conducting a literature review to determine the extent to which the problem has been developed | |
| | Conducting scientific research (data collection, conducting experiments/experiments and processing their results) | |
| | Registration of scientific research results | |
| Preparation of publications that present the main results of scientific research | Preparation of scientific articles for publication in peer-reviewed scientific journals | 216 |
| | Speaking at specialized scientific conferences/seminars, including preparation of materials (presentations and reports) | |
| | Preparation of applications for participation in grant competitions (optional) | |
| Interim certification | Preparation of a report on the results of scientific research | 72 |
| | Presentation of a report on the results of scientific research at a department meeting | |
| 2 year | | |
| Scientific activities aimed at preparing a dissertation for defense | Conducting scientific research (data collection, conducting experiments/experiments and processing their results) | 1404 |
| | Registration of scientific research results | |

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|--|--|------|
| Preparation of publications that present the main results of scientific research | Preparation of scientific articles for publication in peer-reviewed scientific journals | 216 |
| | Speaking at specialized scientific conferences/seminars, including preparation of materials (presentations and reports) | |
| | Preparation of applications for participation in grant competitions | |
| Interim certification | Preparation of a report on the results of scientific research | 72 |
| | Presentation of a report on the results of scientific research at a department meeting | |
| 3 year | | |
| Scientific activities aimed at preparing a dissertation for defense | Conducting scientific research (data collection, conducting experiments/experiments and processing their results) | 1872 |
| | Registration of scientific research results | |
| Preparation of publications that present the main results of scientific research | Preparation of scientific articles for publication in peer-reviewed scientific journals | 216 |
| | Speaking at specialized scientific conferences/seminars, including preparation of materials (presentations and reports) | |
| | Preparation of applications for patents for inventions, utility models, industrial designs, breeding achievements (optional) | |
| Interim certification | Preparation of a report on the results of scientific research | 72 |
| | Presentation of a report on the results of scientific research at a department meeting | |
| 4 year | | |
| Scientific activities aimed at preparing a dissertation for defense | Conducting scientific research (conducting experiments/experiments and processing their results) | 1656 |
| | Registration of dissertation research in accordance with the requirements of GOST R 7.0.11–2011 | |
| Preparation of publications that present the main results of scientific research | Preparation of scientific articles for publication in peer-reviewed scientific journals | 216 |
| | Speaking at specialized scientific conferences/seminars, including preparation of materials (presentations and reports) | |
| | Preparation of applications for patents for inventions, utility models, industrial designs, breeding achievements (optional) | |
| Interim certification | Preparation of a report on the results of scientific research | 72 |
| | Presentation of a report on the results of scientific research at a department meeting | |
| Total labor intensity of scientific research: | | 7560 |

5. MATERIAL AND TECHNICAL SUPPORT FOR SCIENTIFIC RESEARCH

| Auditorium with a list of logistics | Location |
|--|--------------------------------|
| Study room for independent, scientific and methodical research work of students and practical classes Set of specialized furniture: student's workplace (10 pcs.), teacher's workplace (1 pc), chalkboard. Demonstration stands, computer, monitor, there is a network access to the Internet. | Moscow, Ordzhonikidze st. 3 |

6. METHODS OF CONDUCTING SCIENTIFIC RESEARCH

Scientific research can be carried out in the structural divisions of RUDN University or on the basis of other scientific, educational or industrial organizations.

Conducting scientific research on the basis of external organizations (outside RUDN University) is carried out on the basis of relevant contracts or cooperation agreements.

The deadlines for completing scientific research correspond to the period specified in the academic calendar of the postgraduate program. The timing of scientific research can be adjusted in agreement with the department of graduate and doctoral studies.

7. EDUCATIONAL, METHODOLOGICAL AND INFORMATION SUPPORT FOR SCIENTIFIC RESEARCH

Regulatory documents regulating the process of preparing and defending a dissertation:

- Federal Law of August 23, 1996 No. 127-FZ “On Science and State Scientific and Technical Policy.” — Text: electronic // Official Internet portal of legal information: [website]. — URL: <http://pravo.gov.ru/proxy/ips/?docbody=&nd=102043112>
- Decree of the Government of the Russian Federation dated September 24, 2013 No. 842 “On the procedure for awarding academic degrees.” — Text: electronic // Official Internet portal of legal information: [website]. — URL: <http://pravo.gov.ru/proxy/ips/?docbody=&nd=102167993>
- GOST R 7.0.11-2011 System of standards for information, library and publishing. Dissertation and dissertation abstract. Structure and design rules. – M.: Standartinform, 2012. – 11 p.

Resources of the information and telecommunications network “Internet”:

EBS of RUDN University and third-party EBS, to which university students have access based on concluded agreements:

- RUDN Electronic Library System: [website]. URL: <http://lib.rudn.ru/MegaPro/Web>
- EBS “University Library Online”: [website]. URL: <http://www.biblioclub.ru/>
- Educational platform “Urayt”: [website]. URL: <https://urait.ru/>
- EBS “Lan”: [website]. URL: <https://e.lanbook.com/>
- Educational platform “Urayt”: [website]. URL: <https://urait.ru/>

Databases and search engines:

- Scientific electronic library “eLibrary.Ru”: [website]. URL: <https://www.elibrary.ru/>
- Scientometric database “Scopus”: [website]. URL: <https://www.scopus.com/>
- Scientometric database “Web of Science”: [website]. URL: <http://webofscience.com/>
- Electronic fund of legal, regulatory and technical information: [website]. URL: <https://docs.cntd.ru/>
- Search engine “Yandex”: [site]. URL: <https://yandex.ru/>
- Google search engine: [site]. URL: <https://www.google.com/>

Educational and methodological materials for carrying out scientific research:

Guidelines for preparing dissertations and scientific publications.

8. ASSESSMENT MATERIALS AND SYSTEM FOR EVALUATING STUDENTS BASED ON THE RESULTS OF SCIENTIFIC RESEARCH

Based on the results of the stages of scientific research, the graduate student submits a detailed oral or written report to the supervisor or to a department meeting. The report includes information characterizing the content of the graduate student's work and reflecting the implementation of scientific research.

The report must include information:

- about the degree of readiness of the dissertation;
- on the preparation and publication of articles in journals included in the list of Higher Attestation Commission, Russian Science Citation Index, Scopus, Web of Science and others equated to them and/or approved by the Academic Council of RUDN University;
- on the participation of a graduate student in scientific and technical events on the topic of his research;
- on participation in the research work of the department (with participation);
- other.

During the period of interim certification, the scientific supervisor provides feedback on the quality, timeliness and success of the graduate student's stages of scientific activity.

The results of scientific research for every six months of study are determined by conducting an intermediate certification with grades "excellent", "good", "satisfactory", "unsatisfactory" and in the ECTS system (A, B, C, D, E) in accordance with the score -RUDN rating system.

DEVELOPERS:

Assistant Professor

M.O. Makeev

HEAD OF THE BASIC EDUCATIONAL UNIT

Assistant Professor

S.V. Popov