Federal State Autonomous Educational Institution of Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
NAMED AFTER PATRICE LUMUMBA
RUDN University

Academy Of Engineering
(educational division (faculty/institute/academy) as programme developer)

Department of Nanotechnology and Microsystem Engineering
(department realizing the PhD program)

SCIENTIFIC RESEARCH PLAN

Scientific specialty:
2.2.9 Design and Technology of Instrumentation and Radio Electronic Equipment
(scientific speciality code and title)

The course instruction is implemented within the PhD programmes:
Design and Technology of Instrumentation and Radio Electronic Equipment
(PhD program title)

2026 г.

1. DISIPLINE (MODULE) GOAL

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. REQUIREMENTS FOR LEARNING OUTCOMES

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. WORKLOAD OF THE DISCIPLINE AND TYPES OF ACTIVITIES

The overall workload of the scientific research is 210 credits (7560 academic hours).

4. RESEARCH CONTENTS

Stages	Stage content (types of activities)	Workload, acad. hours
First Year		
Research activity aimed at preparing for a thesis 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	
Publication Activity	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	
Second year		
Research activity aimed at preparing for a thesis defense	Conducting scientific research (data collection, conducting experiments/experiments and processing their results)	1404
	Registration of scientific research results	

Publication Activity	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	
Third year		
Research activity aimed at preparing for a thesis defense	Conducting scientific research (data collection, conducting experiments/experiments and processing their results)	1872
	Registration of scientific research results	
Publication Activity	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	
Fourth year		
Research activity aimed at preparing for a thesis 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	
Publication Activity	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. EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

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. INTERNSHIP LOCATION AND TIMELINE

Scientific research can be carried out both in structural subdivisions of RUDN University or in organizations of Moscow (stationary), and at bases located outside of Moscow (exit).

Conducting scientific research on the basis of an external organization (outside RUDN University) is carried out on the basis of an appropriate agreement, which specifies the terms, place and conditions for performing scientific research in the base organization. The deadlines for the implementation of scientific research correspond to the period indicated in the calendar academic schedule of the postgraduate program.

Practice dates can be adjusted in coordination with the Department of Doctoral Studies of the RUDN University

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 TOOLKIT AND GRADING SYSTEM FOR EVALUATION OF PHD STUDENTS' COMPETENCES LEVELS AS SCIENTIFIC RESEARCH RESULTS

Based on the results of the stages of scientific research, the PhD 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 PhD 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 PhD 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 interim certification period, the supervisor provides feedback on the quality, timeliness and success of the PhD 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 rating system.

DEVELOPERS:

Assistant Professor M.O. Makeev

HEAD OF THE DEPARTMENT

Assistant Professor S.V. Popov