Federal State Autonomous Educational establishment of higher education
RUDN-University

Engineering Academy

Recommended by ICSS

PROGRAMME STRUCTURE AND SYLLABUS OF SCIENTIFIC RESEARCH

Research type: Preparation of a scientific qualification thesis

Recommended for the program track: 09.06.01 Informatics and computer engineering

Educational program specialization: Management in social and economic systems (engineering science): strategic management

1. Course objectives and learning outcomes

Aim: the preparation of a scientific qualification thesis (SQT) for the degree of Candidate of sciences.
Tasks to be solved in the course of scientific research:
1) Choice of an actual topic of SQT.
2) Planning the steps of the SQT preparation, determining the necessary resources (material and intangible), the choice of means, techniques and methods for each stage.
3) Conducting a critical analysis of literary sources (scientific information) on the topic of research.
4) Conducting scientific research and experiments.
5) Approbation of the obtained results.
6) Registration of SQT results in accordance with the established requirements for reporting documents.
7) Preparation of scientific articles, applications for the results of intellectual activity, obtained during the SQT.

2. Place of the Scientific Research (SR) in the structure of General Education Programme

The SR belongs to the variable part of Block 3 of the curriculum. Table 1 shows the previous and subsequent components of the educational program aimed at the formation of competencies in accordance with the competence matrix of Education Programme of High Education Competence-based education.

Table No. 1

Preceding and subsequent courses, directed to the competences forming

№ п/п	Competence and its code	Preceding courses	Following courses
Universal competencies			
1	UC-3 UC-5 UC-6	Scientific research (research activity) Research methodology Research Seminar Teaching Methodology for Informatics and Computer Engineering	Submission of a scientific report on the main results of the prepared scientific qualification thesis (SQT)
General professional competencies			
2	GPC-5 GPC-6 GPC-7	Scientific research (research activity) Research methodology Research Seminar Management in social and economic systems	Submission of a scientific report on the main results of the prepared scientific qualification thesis
Professional competence			
3	PC-3 PC-4 PC-5	Scientific research (research activity) Research methodology Research Seminar Management in social and economic systems Modeling social and economic systems Actual problems of the theory of management of social economic systems System analysis, control and information processing Practice for obtaining professional skills and professional experience (research practice)	Submission of a scientific report on the main results of the prepared scientific qualification thesis

3. Requirements to the outcome of the SR

The learning outcomes of the SR are special knowledge, abilities, relevant skills and experience, which will ensure the achievement of the planned results of mastering the educational program and will characterize the stages of the formation of the following competence:
−ready to participate in the work of Russian and international research teams to solve scientific and scientific and educational problems (UK-3);
−able to follow ethical standards in professional activity (UK-5);
−able to plan and solve problems of one's own professional and personal development (UK-6)
−способность объективно оценивать результаты исследований и разработок, выполненных

другими специалистами и в других научных учреждениях (ОПК-5);

−able to evaluate objectively the results of research and development carried out by other specialists and in other scientific institutions (GPC-5);

− the ability to present the results of research activities at a high level and taking into account the observance of copyright (GPC-6);

−get knowledge of methods of conducting patent research, licensing and copyright protection when creating innovative products in the field of professional activity (GPC-7);

−ready for independent (including leading) research activities, requiring broad fundamental training in modern areas of branch science, deep specialized training in the chosen direction, possession of the skills of modern research methods (PC-3);

−get fundamental knowledge in the main sections of computer science and computer technology, including the theoretical foundations of computer science, mathematical modeling, numerical methods and software packages, system analysis, information management and processing, elements and devices of computer technology and control systems, management in social and economic systems, use information retrieval systems, use experimental research techniques (PC-4).

−get fundamental knowledge in the main sections of informatics and computer technology, must have the ability to conduct scientific research and obtain new scientific and applied results (PC-5).

4. Объем научных исследований и виды учебной работы

General workload of the course is 51 credit units (1 836 academic hours)

academic hours

Form of study work	Total hours								Total
	Semester								
	1	2	3	4	5	6	7	8	
Class hours (total)	-	-	-	-	-	-	40	14	54
Including:									
Lectures	-	-	-	-	-	-	-	-	-
Practical classes (PC)	-	-	-	-	-	-	40	14	54
Self-study	-	-	-	-	-	-	1 022	724	1 746
Assessment	-	-	-	-	-	-	18	18	36
Total hours:	-	-	-	-	-	-	1 080	756	1 836
credits:	-	-	-	-	-	-	30	21	51

5. Content of the course

5.1. Course Units

№ п/п	Name of the course part	Subject matter of the part
1	Selection and approval of the SQT theme-research topic	Selection of a research topic, justification of its relevance based on the analysis of literary sources, formulation of a working hypothesis, goals and objectives of the study, scientific novelty, theoretical and practical significance, justification of the degree of development of the chosen research topic, formulation of research methodology and methods, development of the program and stages of research, choice of object and subject of research
2	Finalization of the first chapter of the SQT (literature review)	Design of the bibliographic list of analyzed literary sources. Writing the text of the first chapter of the SQT.
3	Finalization of the second chapter of the SQT (theoretical and experimental studies)	The solution of the tasks of the SQT is to conduct theoretical and experimental research to achieve the set goal. Preparation of scientific papers (publications) of the main research results. Writing the text of the second chapter of the SQT.
4	Generalization and analysis of research results. Finalization of the final sections (chapters) of the SQT	Generalization and analysis of research results. Design of illustrative material. Writing the final chapters of the SQT, formulating conclusions and conclusions on the work performed.

5	Implementation of the results of the SQT in practical activity. Writing of the abstract.	Approbation of SQT results. Presentation at scientific and technical events. Implementation of the results of the SQT into practice, receipt of acts of implementation. Registration of dissertation abstract.

5.2. Course Units and Academic Activities

academic hours

№ п/п	Subject matter of the part of SR	Lectures	Seminars	Self-study	Assessment	Total workload, hours o
1	Selection and approval of the SQR topic	-	13	340	6	359
2	Finalization of the first chapter of the SQR (literature review)	-	13	341	6	360
3	Finalization of the second chapter of the SQR (theoretical and experimental research)	-	14	341	6	361
4	Generalization and analysis of research results. Finalization of the final sections (chapters) of the SQR	-	7	362	9	378
5	Implementation of the results of the SQR in practical activity. The design of the abstract.	-	7	362	9	378
	Итого:	-	54	1746	36	1836

6. Seminars/practical classes

№ п/п	Course unit	Topics and issues for discussion	Total workload, hours
1	1	Selection of a research topic, justification of its relevance based on the analysis of literary sources, formulation of a working hypothesis, goals and objectives of the study, scientific novelty, theoretical and practical significance, justification of the degree of development of the chosen research topic, formulation of research methodology and methods, development of the program and stages of research, choice of object and subject of research	13
2	2	Preparation of the bibliographic list of analyzed literary sources. Writing the text of the first chapter of the SQT.	13
3	3	Solving the tasks of the SQT is to conduct theoretical and experimental research to achieve this goal. Preparation of scientific works (publications) of the main research results. Writing the text of the second chapter of the SQT.	14
4	4	Generalization and analysis of research results. Design of illustrative material. Writing the final chapters of the SQT, formulating conclusions and conclusions on the work performed.	7
5	5	Approbation of SQT results. Presentation at scientific and technical events. Implementation of the results of the SQT into practice, receipt of acts of implementation. Registration of dissertation abstract.	7

7. Technical Support

Classrooms with technical support	Address
Classroom for lectures, seminars and midterm assessments № 493 Projector Epson EH-TW5300 (LCD, 1080p 1920 x 1080, 2200Lm, 35000:1, 2 x HDMI, MHL Screen Draper Baronet NTSC (3:4) 244/96(8) 152*203 MW Set of specialized furniture	Moscow, Ordzhonikidze str., 3
Education and methodology Calassroom for self-study № 345 Equipment and furniture: - personal computers with access to the Internet; - desks, chairs	Moscow, Ordzhonikidze str., 3

8. Study-methodical and information sources

Databases, reference systems and search engines:

1. Electronic library system(ELS) РУДН and third-party ELS :
   - ELS RUDN http://lib.rudn.ru/MegaPro/Web
   - ELS «University Library Online» http://www.biblioclub.ru
   - ELS Юрайт http://www.biblio-online.ru
   - ELS «Student's consultant» www.studentlibrary.ru
   - ELS «Лань» http://e.lanbook.com/
2. Websites of ministries, departments, services, production enterprises and companies whose activities are specialized for the course:
   - http://economy.gov.ru/minec/main/- website of the Ministry of Economic Development of the Russian Federation
3. Databases and search engines:
   - electronic fund of legal and normative-technical documentation http://docs.cntd.ru/
   - Yandex search engine https://www.yandex.ru/
   - search engineGoogle https://www.google.ru/
   - abstract database SCOPUS http://www.elsevierscience.ru/products/scopus/

9. Educational methodology resources

Basic literature

1. Современный менеджмент. Учебник / Кафидов В.В., Сопилко Н.Ю. М.: РУДН, 2018. 380 с.

2. Мельников Роман Михайлович. Эконометрика [Электронный ресурс]: Учебное пособие / Р.М. Мельников. – Электронные текстовые данные. – М.: Проспект, 2017. – 282 с.

3. Эконометрика: учебник / К.В. Балдин, В.Н. Башлыков, Н.А. Брызгалов и др.; под ред. В.Б. Уткина. - 2-е изд. - Москва: Издательско-торговая корпорация «Дашков и К°», 2017. – 562 с.: ил. - Библиогр.: с. 473-477. - ISBN 978-5-394-02145-9; То же [Электронный ресурс]. - URL: http://biblioclub.ru/index.php?page=book&id=452991 (17.01.2018).

4. Новиков А.И. Экономико-математические методы и модели: учебник / А.И. Новиков. - Москва: Издательско-торговая корпорация «Дашков и К°», 2017. - 532 с.: ил. - (Учебные издания для бакалавров). - Библиогр. в кн. - ISBN 978-5-394-02615-7; То же [Электронный ресурс]. - URL: http://biblioclub.ru/index.php?page=book&id=454090 (04.05.2019).

5. Матюшок В.М. Основы эконометрического моделирования с использованием Eviews: Учебное пособие / В. М. Матюшок, С.А. Балашова, И.В. Лазанюк. – 3-е изд., перераб. и доп. - М.: Изд-во РУДН, 2015. – 228 с.

Supplementary literature:

1. Теория систем и системный анализ: учебник / В.М. Вдовин, Л.Е. Суркова, В.А. Валентинов. - 3-е изд. - Москва: Издательско-торговая корпорация «Дашков и К°», 2016. - 644 с.: ил. - (Учебные издания для бакалавров). Библиогр. в кн. – ISBN 978-5-394-02139-8; [Электронный ресурс]. URL: http://biblioclub.ru/index.php?page=book&id=453515 (17.01.2018).

2. Зариковская Н.В. Математическое моделирование систем: учебное пособие / Н.В. Зариковская; Министерство образования и науки Российской Федерации, Томский Государственный Университет Систем Управления и Радиоэлектроники (ТУСУР). - Томск: Томский государственный университет систем управления и радиоэлектроники, 2014. - 168 с.: схем., ил. - Библиогр. в кн.; То же [Электронный ресурс]. - URL: http://biblioclub.ru/index.php?page=book&id=480523 (19.01.2018).

3. Управление информационными системами: лабораторный практикум / Министерство образования и науки Российской Федерации, Федеральное государственное автономное образовательное учреждение высшего профессионального образования «Северо-Кавказский федеральный университет»; авт.-сост. А. Ю. Орлова. - Ставрополь: СКФУ, 2016.

- 138 c [Электронный ресурс]. - URL:http://biblioclub.ru/index.php?page=book&id=459314 (17.01.2018).

The program was drawn up in accordance with the requirements of the OS of the RUDN.

Associate professor   E.A. Kovaleva

Head of the educational program,
Director of the Department   O.E. Samusenko