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ФИО: Ястребов Олег Александрович  
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**Federal State Autonomous Educational Institution for Higher Education  
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA  
NAMED AFTER PATRICE LUMUMBA  
(RUDN University)**

**Academy of Engineering**

educational division (faculty/institute/academy) as higher education programme developer

**INTERNSHIP SYLLABUS**

**Work Experience Internship**

internship title

**Industrial**

internship type

**Recommended by the Didactic Council for the Education Field of:**

**05.04.01 Geology**

field of studies / speciality code and title

**The student's internship is implemented within the Higher Education Programme of Higher Education:**

**Mining Geology**

higher education programme profile/specialisation title

## 1. INTERNSHIP GOAL(s)

The goal of the Internship «Work Experience Internship» is the consolidation of theoretical knowledge gained in the learning process, the acquisition of practical skills and the formation of professional competencies in the field of geology, geophysics and hydrogeology of ore deposits.

## 2. REQUIREMENTS FOR LEARNING OUTCOMES

The internship implementation is aimed at the development of the following competences (competences in part):

*Table 2.1. List of competences that students acquire during the internship*

<b>Competence code</b>	<b>Competence descriptor</b>	<b>Competence formation indicators (within this course)</b>
GC-6	Able to identify and implement the priorities of their own activities and ways to improve it based on self-assessment	GC-6.1 Controls the amount of time spent on specific activities; GC-6.2. Develops time management tools and methods for accomplishing specific tasks, projects, and goals; GC-6.3 Analyzes one's resources and their limits (personal, situational, time, etc.) to successfully complete the assigned task.
PC-2	Capable of justifying the need, choosing the best methodology, planning, implementing, interpreting results, and supervising geophysical work at various stages of mineral site development	PC-2.2 Knows how to select the best methodology, design, implement, interpret the results of geophysical works; PC-2.3 Knows how to justify and select optimal methodology, manage geophysical work at different stages of subsoil area development.
PC-4	Capable of designing, assisting with, and supervising a geologic study of a subsoil area at various stages of development	PC-4.2 Knows how to apply methodological solutions in the design and implementation of the geological study of a subsoil area at various stages of its development; PC-4.3 Knows how to apply the acquired knowledge and skills in the design, support and management of the geological study of a subsoil area at various stages of its development.

## 3. INTERNSHIP IN HIGHER EDUCATION PROGRAMME STRUCTURE

The internship refers to the core component of (B2) block of the higher educational programme curriculum.

Within the higher education programme students also master other disciplines (modules) and / or internships that contribute to the achievement of the expected learning outcomes as results of the internship.

*Table 3.1. The list of the higher education programme components that contribute to the achievement of the expected learning outcomes as the internship results.*

<b>Competence code</b>	<b>Competence descriptor</b>	<b>Previous courses/modules, internships*</b>	<b>Subsequent courses/modules, internships*</b>
GC-6	Able to identify and implement the priorities of their own activities and ways to improve it based on self-assessment	Geological and Geophysical Basics of Mineral Prospecting and Exploration Mining Geology Modelling of Mineral Deposits	Final State Examination
PC-2	Capable of justifying the need, choosing the best methodology, planning, implementing, interpreting results, and supervising geophysical work at various stages of mineral site development	Regional Geology. Geology of Central and Southern Africa Geological and Geophysical Basics of Mineral Prospecting and Exploration Mining Geology Modelling of Mineral Deposits	Hydrogeology Mining Hydrogeology Research Work (Mining Geology). Part 1 Research Work (Geological and Geophysical Survey). Part 1 Research Work (Mining Geology). Part 2 Research Work (Geological and Geophysical Survey). Part 2 Pre-Graduate Practice Final State Examination
PC-4	Capable of designing, assisting with, and supervising a subsoil area at various stages of development	Regional Geology. Geology of Central and Southern Africa Geological and Geophysical Basics of Mineral Prospecting and Exploration Mining Geology Modelling of Mineral Deposits	Hydrogeology Mining Hydrogeology Research Work (Mining Geology). Part 1 Research Work (Geological and Geophysical Survey). Part 1 Research Work (Mining Geology). Part 2 Research Work (Geological and Geophysical Survey). Part 2 Pre-Graduate Practice Final State Examination

\* To be filled in according with the competence matrix of the higher education programme.

#### 4. INTERNSHIP WORKLOAD

The total workload of the internship is 6 credits (216 academic hours).

#### 5. INTERNSHIP CONTENTS

*Table 5.1. Internship contents\**

<b>Modules</b>	<b>Contents (topics, types of practical activities)</b>	<b>Workload, academic hours</b>
Module 1. Organizational and preparatory	Assignment of an individual task from the supervisor	1
	Workplace safety instruction (in the laboratory and/or production site)	1
Module 2. Main	Introduction to the work of the department/unit/ or other structural element of the enterprise dealing with the issues of mining and industrial geology	18
	Performing field work at the site of study (area/area and/or deposit at any stage of exploration and development)	120

<b>Modules</b>	<b>Contents (topics, types of practical activities)</b>	<b>Workload, academic hours</b>
	Collecting analytical data and/or materials in accordance with the individual assignment, analyzing and processing the data obtained	54
	Ongoing supervision of the internship by the supervisor	2
Keeping a practice diary		2
Writing an internship report		9
Preparing for defence and defending the internship report		9
<b>TOTAL:</b>		<b>216</b>

\* The contents of internship through modules and types of practical activities shall be FULLY reflected in the student's internship report.

## **6. INTERNSHIP EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS**

The infrastructure and technical support necessary for the internship implementation include: laboratories/ specially equipped classrooms/ polygons/ measuring and computing complexes/ vehicles/ industrial equipment and devices/ household premises that comply with current sanitary and fire safety standards.

In case of stationary or offsite internship in Moscow or outside Moscow, students are provided with rooms that comply with current sanitary and fire safety norms, as well as safety requirements at the enterprise, workplace and when working with certain production/laboratory equipment.

During stationary practice at the RUDN University, depending on individual assignment, any laboratories of the Department of Subsoil and Oil & Gas Engineering, the RUDN Library, that comply with current sanitary and fire safety norms as well as SAFETY REQUIREMENTS at the enterprise, workplace and when working with certain production/laboratory equipment can be used.

The SAFETY REQUIREMENTS at the enterprise, workplace (including the department of RUDN University) and during the work with certain production/laboratory equipment incorporate/ include applicable labor protection rules, fire safety rules and other applicable local regulations.

The bases for the students' internship are:

- a geological site with ore mineralization (deposit, ore occurrence, prospective area) located in Russia or another country (for example, in Tanzania supported by Uranium One).
- organizations whose main professional activity is aimed at solving mining issues of mineral exploration and development;
- research, design and scientific-production institutions and organizations of mining profile;
- laboratories of the department/RUDN University or a partner university.

The student can come up with the initiative of the place of practice. The direction of professional activity of the organization proposed by the student for the practice should correspond to the profile of the educational program and types of professional activity, for which the graduate of the program is preparing. The place of practice must be agreed with the head of the department with the subsequent (in the case of a positive decision) the conclusion of the relevant contract with the proposed organization of the student.

## 7. INTERNSHIP LOCATION AND TIMELINE

The internship can be carried out both at the structural divisions of RUDN University and at Moscow-based organisations (inside practice), and as well as those located outside Moscow (outside practice).

The internship at an external organisation (outside RUDN University) is legally arranged on the grounds of an appropriate agreement, which specifies the terms, place and conditions for an internship implementation at the organisation.

The period of the internship, as a rule, corresponds to the period indicated in the training calendar of the higher education programme. However, the period of the internship can be rescheduled upon the agreement with the Department of Educational Policy and the Department for the Organization of Internship and Employment of RUDN students.

## 8. RESOURCES RECOMMENDED FOR INTERNSHIP

### *Main readings:*

1. Roger Marjoribanks. Geological Methods in Mineral Exploration and Mining. Springer-Verlag Berlin Heidelberg, 2010 (Second Edition). - P. 233. — URL: <https://www.geokniga.org/bookfiles/geokniga-geological-methods-mineral-exploration-and-mining.pdf>

2. Griffiths D.H., King R.F. Applied Geophysics for Geologists and Engineers. The Elements of Geophysical Prospecting. 2nd Ed. — Pergamon Press, 1988. — 236 p. — ISBN: 0-08-022071-1. — URL: <https://www.geokniga.org/bookfiles/geokniga-applied-geophysics-geologists-and-engineers.pdf>

<https://www.geologyseeker.com/2022/05/geological-methods-in-mineral.html>

3. Haldar S.K. Mineral Exploration Principles and Applications, 2nd Edition. Elsevier, 2018. — 378 p. — URL: <https://www.geologyseeker.com/2022/06/mineral-exploration-principles-and.html>

4. Deb P.K. An Introduction to Mine Hydrogeology. Springer Cham Heidelberg New York Dordrecht London, 2014. XIV, 54 p. 12 illus., 3 illus. in color. — ISBN: 978-3-319-02987-0, ISBN: 978-3-319-02988-7 (eBook), DOI 10.1007/978-3-319-02988-7 — (SpringerBriefs in Water Science and Technology). — URL: <https://sciarium.com/file/115505/>

The main literature can be expanded and recommended by the head of practice individually to each student in accordance with the individual assignment.

### *Additional readings:*

1. J. Wasowski, Daniele Giordan, Piernicola Lollino. "Engineering Geology and Geological Engineering for Sustainable Use of the Earth's Resources". Springer, 2017 - <http://dx.doi.org/10.1007/978-3-319-61648-3>

2. Paola Gattinoni, Enrico Maria Pizzarotti, Laura Scesi. "Engineering Geology for Underground Works". Springer Dordrecht, 2014 - <https://doi.org/10.1007/978-94-007-7850-4>

3. Hustrulid W., Kuchta M., Martin R. "Open pit mine planning and design". CRC Press, 2013 - <https://www.geokniga.org/books/28414>

4. Charles J. Moon, Michael K. G. Whateley, Anthony M. Evans. Introduction to Mineral Exploration, 2nd Edition. — Blackwell Publishing, 2006. — 499 p. — URL: <https://www.geologyseeker.com/2022/07/introduction-to-mineral-exploration-2nd.html>

5. Rossi M.E., Deutsch C.V. Mineral Resource Estimation. Springer, 2014. — 337 p. — ISBN: 9781402057168. — URL: <https://www.geologyseeker.com/2022/05/ore-deposit-geology-by-john-ridley.html>

6. Brassington R. Field Hydrogeology, 4th Edition. — John Wiley & Sons Ltd, 2017. — 304 p. — (The Geological Field Guide Series) — ISBN: 9781118397367. — URL: <https://sciarium.com/file/268418/>

7. Broder J. Merkel, Andrea Hasche-Berger. Uranium, Mining and Hydrogeology. Springer Berlin, Heidelberg, 2008. — 980 p. — ISBN: 3540877452. — URL: [https://avxhm.se/ebooks/3540877452\\_hydrogeology.html](https://avxhm.se/ebooks/3540877452_hydrogeology.html)

Additional literature may be expanded and/or modified and recommended by the supervisor of practice individually to each student in accordance with the individual assignment.

*Internet sources:*

1. Electronic libraries (EL) of RUDN University and other institutions, to which university students have access on the basis of concluded agreements:

- RUDN Electronic Library System (RUDN ELS) <http://lib.rudn.ru/MegaPro/Web>
- EL "University Library Online" <http://www.biblioclub.ru>
- EL "Yurayt" <http://www.biblio-online.ru>
- EL "Student Consultant" [www.studentlibrary.ru](http://www.studentlibrary.ru)
- EL "Lan" <http://e.lanbook.com/>
- EL "Trinity Bridge" <http://www.trmost.ru>

2. Databases and search engines:

- electronic foundation of legal and normative-technical documentation <http://docs.cntd.ru/>

- Yandex search engine <https://www.yandex.ru/>
- Google search engine <https://www.google.ru/>
- Scopus abstract database <http://www.elsevierscience.ru/products/scopus/>
- Geology Portal GeoKniga <http://www.geokniga.org>
- Geological Survey of Tanzania (GST) <https://www.gst.go.tz>
- Tanzania Geological Society (TGS) <https://www.tgs.or.tz>
- <https://www.gst-datashop.com>

*The training toolkit and guidelines for a student to do an internship, keep an internship diary and write an internship report\*:*

1. Safety regulations to do the internship (safety awareness briefing).
2. Guidelines for keeping an internship diary and writing an internship report.

\*The training toolkit and guidelines for the internship are placed on the internship page in the university telecommunication training and information system under the set procedure.

## **9. ASSESSMENT TOOLKIT AND GRADING SYSTEM\* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL AS INTERNSHIP RESULTS**

The assessment toolkit and the grading system\* to evaluate the level of competences (competences in part) formation as the internship results are specified in the Appendix to the internship syllabus.

\* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

### **DEVELOPERS:**

**Head of the Department of  
Subsoil Use and Oil&Gas  
Engineering**

position, educational department

**A. Kotelnikov**

name and surname

**Associate Professor of the  
Department of Subsoil Use and  
Oil&Gas Engineering**

position, educational department

**M. Romero**

name and surname

### **HEAD OF EDUCATIONAL DEPARTMENT:**

**Department of Subsoil Use and  
Oil&Gas Engineering**

educational department

**A. Kotelnikov**

name and surname

### **HEAD OF**

### **HIGHER EDUCATION PROGRAMME:**

**Head of the Department of  
Subsoil Use and Oil&Gas  
Engineering**

position, educational department

**A. Kotelnikov**

name and surname