

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

**Engineering Academy**

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

**Department of Construction Technology and Structural Materials**

(department realizing the PhD program)

**INTERNSHIP SYLLABUS**

**Pedagogical Training**

(internship type)

Scientific specialty:

**2.1.1. Building designs, buildings and constructions**

**2.1.6. Hydrotechnical structures, hydraulics and engineering hydrology**

**2.1.7. Technology and management in construction**

**2.1.9. Structural mechanics**

(scientific speciality code and title)

The PhD student's internship is implemented within the PhD programmes:

**Building designs, buildings and constructions**

**Hydrotechnical structures, hydraulics and engineering hydrology**

**Technology and management in construction**

**Structural mechanics**

(PhD program title)

## 1. INTERNSHIP GOALS

The aim of the Internship is to develop professional competencies through direct participation in pedagogical work, as well as the acquisition of professional competencies necessary to work in the professional sphere.

## 2. REQUIREMENTS FOR LEARNING OUTCOMES

Conducting “pedagogical practice” is aimed at mastering the following competencies:

- the ability to follow ethical standards in professional activities;
- readiness for teaching activities in the main educational programs of higher education.
- readiness to teach training courses, disciplines (modules), conduct certain types of training sessions in Russian and foreign languages according to higher education programs;
- the ability to organize educational, research and project activities of students in higher education programs.
- possession of innovative science-based methods for designing structures and devices for obtaining water from natural sources, its preparation for various needs, transportation to places of consumption, subsequent processing with rational use in technological cycles, taking into account the requirements of ensuring environmental safety, increasing the efficiency and reliability of the systems water management of populated areas, industrial enterprises and territorial-industrial complexes.

## 3. INTERNSHIP WORKLOAD

The overall workload of the internship is 5 credits (180 academic hours).

## 4. INTERNSHIP CONTENTS

Stages of internship	Content of the units (topics)	Workload, acad. hours
Section 1. Organizational and preparatory	Introductory meeting: giving instructions on the forms, types of work during pedagogical training	1
	Safety training in the workplace (in the laboratory and/or in production). Setting goals and objectives for practice. Review and analysis of information on assigned disciplines.	1
Section 2. Basic	Conducting practical classes with students. Study of regulatory documents, structure of the educational process, courses taught.	70
	Attendance at teachers' classes; independent preparation of lesson plans and notes in academic disciplines; selection and analysis of basic and additional literature.	60
	Participation in scientific and practical conferences, seminars and meetings of methodological sections; participation in department activities to develop work programs for disciplines.	20
	Current control of the internship by the supervisor	10
Section 3. Intermediate certification	Editing the practice report	9
	Submitting and defending the practice report	9
Total academic hours of internship:		180

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

The place of internship shall comply with the current sanitary and epidemiological requirements, fire safety regulations and standards of health protection of the students.

It requires classrooms that meet the safety requirements for academic work, if necessary, a computer room with workstations that provide Internet connection, as well as classrooms with multimedia equipment.

Training laboratory for conducting laboratory and practical classes - Laboratory of Building Materials and Building Structures, room. No. 24a. Combined testing machine C040N+C092-11 "MATESTA", Laboratory vibrating platforms C282 MATEST and SMZh-539, Chamber-cabinet for normal hardening and wet storage KNT-72, Universal steaming chamber KUP-1, forms for concrete samples, concrete mixers - 2 pcs., Concrete strength meter POS-50MG4, Vika devices, Aistov device, Electronic moisture meter Moisture meter - MG4U, Ultrasonic flaw detector A1220 MONOLITH, Shaking table with a cone and ruler, etc. installations and testing devices.

Educational laboratory for conducting laboratory and practical classes - Laboratory of Soil Mechanics, No. 520a. Training and testing complex ASIS-1 "Automated testing systems in construction", laboratory scales MWR-3000, drying cabinet, laboratory glassware, etc.

## **6. INTERNSHIP LOCATION AND TIMELINE**

Internship 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 internship 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 internship implementation correspond to the period indicated in the calendar academic schedule of the postgraduate program. Internship dates can be adjusted in coordination with the Department of Doctoral Studies of the RUDN University.

## **7. RESOURCES RECOMMENDED FOR INTERNSHIP**

### *Main readings:*

1. Banshchikova I.A., ANSYS complex: nonlinear strength analysis of structures [Electronic resource]: textbook / Banshchikova I.A. - Novosibirsk: NSTU Publishing House, 2015. - 94 p. - ISBN 978-5-7782-2816-0

2. Moskalev N.S., Metal structures [Electronic resource]: Textbook / N.S. Moskalev, Ya.A. Pronozin. - M.: ASV Publishing House, 2014. - 344 p. - ISBN 978-5-93093-500-4 - Access mode: <http://www.studentlibrary.ru/book/ISBN9785930935004.html>

3. Ibragimov A.M., Welding of building metal structures [Electronic resource]: Textbook / Ibragimov A.M., Parlashkevich V.S. - M.: ASV Publishing House, 2015. - 176 p. - ISBN 978-5-93093-891-

### *Additional readings:*

1. Automated information systems in economics / ed. M.V. Vasilyeva. - Moscow: Student Science, 2012. - Part 1. Collection of student works. - 1064 s. - (University science to help students). - ISBN 978-5-00046-053-5; Access mode: <http://biblioclub.ru/index.php?page=book&id=225482>

2. Fundamentals of scientific research and patent science: educational and methodological manual / comp. V.A. Valkov, V.A. Golovatyuk, V.I. Kochergin, S.G. Shchukin. - Novosibirsk: Novosibirsk State Agrarian University, 2013. - 228 p. Access mode: <http://biblioclub.ru/index.php?page=book&id=230540>

3. Sidorov V.N., Finite element method in the calculation of structures. Theory, algorithm, examples of calculations in the SIMULIA Abaqus software package [Electronic resource]:

Textbook / Sidorov V.N., Vershinin V.V. - M.: ASV Publishing House, 2015. - 288 p. - ISBN 978-5-4323-0090-4

4. Radin V.P., Finite element method in dynamic problems of strength of materials [Electronic resource] / Radin V.P., Samogin Yu.N., Chirkov V.P. - M.: FIZMATLIT, 2013. - 316 p. - ISBN 978-5-9221-1485-1

*Internet Resources:*

ELS RUDN University and third party EBS, to which university students have access based signed contracts:

- RUDN Electronic Library System, <http://lib.rudn.ru/MegaPro/Web> ;
- ELS University Library Online, <http://www.biblioclub.ru> ;
- EBS Urayt, <http://www.biblio-online.ru> ;
- ELS Student Consultant, <http://www.studentlibrary.ru> ;
- EBS Lan, <http://e.lanbook.com> ;
- EBS Trinity Bridge <http://www.trmost.ru>

Databases and search engines:

- Electronic fund of legal and normative-technical documentation, <http://docs.cntd.ru> ;
- Yandex search system [https:// www .yandex.ru](https://www.yandex.ru) ;
- Google search system <https://www.google.com> ;
- Reference database Scopus , <http://www.elsevierscience.ru/products/scopus>

*Educational and methodological materials for students' self-work studying the internship:*

Instructions for labor protection and fire safety during practical training (initial instruction).

Guidelines for students to fill out a diary and prepare a report on internship.

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

Assessment toolkit and a grading system to evaluate the level of competences (competences in part) formation as the course results are specified in the Appendix to the course syllabus.

### **DEVELOPERS:**

Associate Professor

A.S. Markovich

### **HEAD OF THE DEPARTMENT**

Director of the department

S.B. Yazyev