**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 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**
**2.1.5. Construction materials and products**
**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**
**Construction materials and products**
**Hydrotechnical structures, hydraulics and engineering hydrology**
**Technology and management in construction**
**Structural Mechanics**
(PhD program title)

2026 г.

## 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 training" 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 courses, disciplines (modules), conduct individual types of classes in Russian and a foreign language in higher education programs;

• the ability to organize educational, research and project activities of students in higher education programs.

• possession of innovative scientifically 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 for ensuring environmental safety, increasing the cost-effectiveness and reliability of the functioning of water management systems in 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 |
| | Setting the goal and objectives of the practice. Review and analysis of information on assigned disciplines. | 1 |
| Section 2. Main | Conducting practical classes with students. The study of regulatory documents, the structure of the educational process, courses taught. | 70 |
| | Attendance at teachers' classes; independent preparation of plans and abstracts of classes 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 the activities of the department for the development of work programs for disciplines. | 20 |
| | Ongoing control of the internship by the head | 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

Educational laboratory for laboratory and practical exercises - Laboratory of Building Materials and Building Structures, room. No. 24a. Combined testing machine C040N + C092-11 "MATESTA", Vibrating plates laboratory C282 MATEST and SMZH-539, Chamber-cabinet for

normal hardening and wet storage KNT-72, Universal steaming chamber KUP-1, molds for concrete samples, concrete mixers-2 pcs., Concrete strength meter POS-50MG4, Vika devices, Aistova's device, Electronic moisture meter - MG4U, Ultrasonic flaw detector A1220 MONOLITH, Shaking table with a cone and ruler, etc. installations and testing devices.

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

## 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. RESOURSES RECOMMENDED FOR INTERNSHIP

*Main readings:*


- Banshchikova IA, Complex ANSYS: nonlinear strength analysis of structures [Electronic resource]: tutorial / Banshchikova IA. - Novosibirsk: Publishing house of NSTU, 2015 .-- 94 p. - ISBN 978-5-7782-2816-0
- Moskalev NS, Metal structures [Electronic resource]: Textbook / NS. Moskalev, Ya.A. Pronosin. - M.: Publishing house ASV, 2014 .-- 344 p. - ISBN 978-5-93093-500-4 - Access mode: http://www.studentlibrary.ru/book/ISBN9785930935004.html
- Ibragimov AM, Welding of building metal structures [Electronic resource]: Textbook / Ibragimov AM, Parlashkevich V.S. - M.: Publishing house ASV, 2015 .-- 176 p. - ISBN 978-5-93093-891


*Additional readings:*


- Automated information systems in the economy / ed. M.V. Vasilyeva. - Moscow: Student Science, 2012. - Part 1. Collection of student works. - 1064 p. - (University science to help the student). - ISBN 978-5-00046-053-5; Access mode: http://biblioclub.ru/index.php?page=book&id=225482
- Fundamentals of scientific research and patenting: teaching aid / comp. V.A. Valkov, V.A. GolovatyUC, V.I. Kochergin, S.G. ShchUCin. - Novosibirsk: Novosibirsk State Agrarian University, 2013 .-- 228 p. Access mode: http://biblioclub.ru/index.php?page=book&id=230540
- Sidorov VN, The finite element method in the design of structures. Theory, algorithm, examples of calculations in the SIMULIA Abaqus software package [Electronic resource]: Textbook / VN Sidorov, VV Vershinin. - M.: Publishing house ASV, 2015 .-- 288 p. - ISBN 978-5-4323-0090-4
- Radin VP, The finite element method in dynamic problems of resistance of materials [Electronic resource] / Radin VP, Samogin Yu.N., Chirkov VP. - M.: FIZMATLIT, 2013 .-- 316 p. - ISBN 978-5-9221-1485-1*Internet Resourses:*


ELS RUDN University and third party EBS, to which university students have accessbased 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 ;
- 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 on the TUIS platform.

**DEVELOPERS:**

Associate Professor A.S. Markovich

**HEAD OF THE DEPARTMENT**

Head of Department S.B. Yazyev