

*Federal State Autonomous Educational Institution of Higher Education  
"Peoples' Friendship University of Russia"*

*Academy of Engineering  
(faculty / institute / academy)*

Recommended by ISSC

## **THE WORKING PROGRAM OF THE DISCIPLINE**

**Name of the discipline** Technology and Organization of Construction

**Recommended for the direction of training / specialty**

08.06.01 Technique and technology of construction

*(the code and name of the direction of training / specialty are indicated)*

**Focus of the program (profile)**

05.23.17. Structural mechanics

*(name of the educational program in accordance with the direction (profile))*

## 1. Goals and objectives of the discipline: “Technology and Organization of Construction “.

The **purpose** of mastering the discipline "Technology and Organization of Construction" is to gain knowledge, skills, skills and experience in the field of modeling processes and phenomena of structures that characterize the stages of the formation of competencies and ensure the achievement of the planned results of mastering the educational program.

The **main objectives** of the discipline are:

- study of the basic principles of physical modeling and theoretical foundations of physical modeling;
- mastering the basic methods of designing technological processes and organizing construction production;
- acquisition by students of knowledge and skills necessary for independent implementation of scientific research.

## 2. Place of discipline in the structure of EP HE:

The discipline "Technology and Organization of Construction" refers to the variable part of block 1 of the curriculum.

Table 1 shows the previous and subsequent disciplines aimed at the formation of discipline competencies in accordance with the competence matrix of EP HE.

Table No. 1

### Prior and subsequent disciplines aimed at the formation of competencies

№	Code and name of competence	Preceding disciplines	Subsequent disciplines (groups of disciplines)
General cultural competences			
General professional competencies			
	GPC-1	Methodology of Scientific Research	Advanced Structural Mechanics Analysis and Design of Structural Systems Building designs, buildings and constructions: the theory of buildings and structures Scientific Research State Exam PhD Qualification Thesis and Presentation
	GPC-2	Methodology of Scientific Research	Advanced Structural Mechanics Analysis and Design of Structural Systems Building designs, buildings and constructions: the theory of buildings and structures Scientific Research State Exam PhD Qualification Thesis and Presentation
Professional competencies (type of professional activity of a builder)			
	PC-1	Methodology of Scientific Research Scientific Seminar Scientific Research	Advanced Structural Mechanics Analysis and Design of Structural Systems Building designs, buildings and constructions: the theory of

			buildings and structures Practice in Obtaining Professional Skills and Professional Experience (Research Practice)Scientific Research Scientific Research 2 State Exam PhD Qualification Thesis and Presentation
Vocational and specialized competency specialization Structural Mechanics			

### 3. Требования к результатам освоения дисциплины:

The process of studying the discipline is aimed at developing the following competencies:

- possession of the methodology of theoretical and experimental research in the field of construction (GPC-1);
- possession of the culture of scientific research in the field of construction, including the use of the latest information and communication technologies (GPC-2);
- possession of methods for the development of scientific and methodological foundations of research, improvement, theoretical, experimental and feasibility studies for the use of various technical solutions and technologies in construction (PC-1).

As a result of studying the discipline, the student must:

**Know:** the methodology of theoretical and experimental research in the field of construction; the culture of scientific research in the field of construction, including the use of the latest information and communication technologies; methods of developing scientific and methodological foundations for research, improvement, theoretical, experimental and feasibility studies for the use of various technical solutions and technologies in construction.

**Be able to:** carry out theoretical and experimental research in the field of construction; conduct scientific research in the field of construction, including using the latest information and communication technologies; development of scientific and methodological foundations for research, improvement, theoretical, experimental and feasibility studies for the use of various technical solutions and technologies in construction; to carry out scientific substantiation of methods for achieving competitive building technologies and organizational and technological solutions in construction.

**Own:** the methodology of theoretical and experimental research in the field of construction; skills in conducting scientific research in the field of construction, including using the latest information and communication technologies; innovative scientifically grounded methods of design of structures and technological solutions in construction.

### 4. The scope of the discipline and types of educational work

The total workload of the discipline is 3 credit points.

Type of educational work	Total hours	Semesters			
		4			
<b>Classroom lessons (total)</b>					
Including:	-	-	-	-	-
<i>Lectures</i>	18	18			
<i>Practical lessons (PL)</i>	38	38			
<i>Seminars (S)</i>	0	0			

<i>Laboratory work (LW)</i>		0	0			
<b>Independent work (total)</b>		34	34			
Total labor intensity	hour	108	108			
	credits	3	3			

## 5. Discipline content

### 5.1. Contents of discipline sections

№	The name of the discipline section	Section content (topics)
1.	<b>Pre-project preparation and organization of construction design.</b>	Stages of pre-design preparation of construction. Economic and engineering surveys in construction. Organizational and technological documentation in construction.
2.	<b>Construction scheduling.</b>	Types and purpose of construction schedules. The procedure for the development of construction schedules.
3.	<b>Networked construction modeling.</b>	Basic parameters and types of network diagrams. Calculation of the network diagram by the sector and tabular method.
4.	<b>Construction master plans as part of POC and PWP.</b>	Types and foundations of the design of building master plans. Development of an object construction master plan.
5.	<b>Economic aspects of technology and organization of construction.</b>	Methods for evaluating investment projects. Determination of the economic efficiency of technological solutions in construction.

### 5.2. Sections of disciplines and types of classes

№	The name of the discipline section	Lekts.	Pract. work	Lab. work	Semin	IWS	Total hour.
1.	<b>Pre-project preparation and organization of construction design.</b>	4	8	0	0	7	19
2.	<b>Construction scheduling.</b>	4	8	0	0	7	19
3.	<b>Networked construction modeling.</b>	3	6	0	0	7	16
4.	<b>Construction master plans as part of POC and PWP.</b>	3	6	0	0	7	16
5.	<b>Economic aspects of technology and organization of construction.</b>	4	6	0	0	6	16

## 6. Laboratory workshop

No laboratory workshop provided

## 7. Practical lessons

№	Discipline section number	Topics of Practical lessons (seminars)	Labor capacity (hour.)
1.	<b>1</b>	Study of the stages of pre-design preparation of construction. Economic and engineering surveys in construction. Organizational and technological documentation in construction.	4 2 2
2.	<b>2</b>	Types and purpose of construction schedules. The procedure for the development of construction schedules.	4 4
3.	<b>3</b>	Basic parameters and types of network diagrams. Calculation of the network diagram by the sector and tabular method.	3 3
4.	<b>4</b>	Types and foundations of the design of building master plans.	3

		Development of an object construction master plan.	3
5.	5	Methods for evaluating investment projects.	2
		Determination of the economic efficiency of technological solutions in construction.	2

## 8. Material and technical support of the discipline:

### 1) *Lecture room number 408.*

A set of specialized furniture; technical means: projection screen; multimedia projector Epson EH-TW 3200, tables and benches, chairs.

### 2) **Educational laboratory for laboratory and practical training - Laboratory for engineering equipment of buildings and structures, room. No. 417.**

Equipment and furniture: Educational and research stand for the study of the regularity of air conditioning RAZ-A-KOV, Educational and scientific stand "Automated heating system", Ball mill BML-6, Model of the circulating water supply system, Model of the water tower, Laboratory stand of thermal conductivity of the outer wall, Laboratory - research stand of the supply and exhaust ventilation system with mechanical induction, Infrared thermal imager ThermaCAM ~ TM ~ P640, Portable hardness tester - Metalltester, Sound propagation time meter PULSAR-1.1, Noise meter, vibrometer, spectrum analyzer EKOFIZIKA-110AV4 and other devices, projection devices Dropper Baronet screen; projector EPSON EB X11, system unit "BONIX" - 1pc.

## 9. Information support of the discipline

### a) software

The use of specialized software in the study of the discipline is not provided.

### б) databases, reference and search systems

1. EBS of RUDN University and third-party EBS to which university students have access on the basis of concluded agreements:

- RUDN University Electronic Library System - RUDN University Library System

<http://lib.rudn.ru/MegaPro/Web>

- EBS "University Library Online" <http://www.biblioclub.ru>

- EBS Yurayt <http://www.biblio-online.ru>

- EBS "Student Consultant" [www.studentlibrary.ru](http://www.studentlibrary.ru)

- EBS "Doe" <http://e.lanbook.com/>

2. Websites of ministries, departments, services, manufacturing enterprises and companies whose activities are core to this discipline:

Ministry of Construction of Russia <http://www.minstroyrf.ru>

3. Databases and search engines:

- electronic fund 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/>

## 10. Educational and methodological support of the discipline:

### a) Main literature

1. Dickman, L. G. Organization of construction production: textbook / L. G. Dickman. - M.: Publishing house ASV, 2017. -- 588 p. - ISBN 978-5-93093-141-9. - Access mode: <http://www.zodchii.ws/books/info-1142.html>

2. SP 48.13330.2011 Organization of construction. M.: 2011. - Access mode: <http://docs.cntd.ru/document/1200084098>

3. Tsai T.N. Organization of construction production / T.N. Tsai, P.G. Grabovoi, V.A. Bolshakov. - M.: Publishing house ASV, 199. - 432 p. - ISBN 5-93093-006-6. - Access mode: <https://mysocrat.com/book-card/17486-organizaciya-stroitelного-proizvodstva/>

б) additional literature

1. Oleinik P.P. Organization of construction production. Preparation and production of construction and installation works: textbook / P.P. Oleinik, V.I. Brodsky. - M.: MGSU, 2014. -- 96 p. - ISBN 978-5-7264-0865-1. - Access mode: <http://mgsu.ru/resources/izdatelskaya-deyatelnost/izdaniya/uchebnye-posobiya/2135>

2. SB collectors. Organization of construction (lectures, course and diploma design): textbook / S.B. Collectors. - Moscow: ASV Publishing House, 2014. -- 160 p. - ISBN 978-5-93093-996-5. - Access mode: <https://iasv.ru/organizatsiya-stroitelstva-lektsii-kursovoe-i-diplomnoe-proektirovanie.html>

3. Oleinik P.P. Organization, planning, management and construction economics. Terminological dictionary / P.P. Oleinik, B.F. Shirshikov. - Moscow: ASV Publishing House, 2016. -- 320 p. - ISBN 978-5-4323-0121-5. - Access mode: <https://iasv.ru/organizatsiya-planirovanie-upravleniya-i-ekonomika-stroitelstva-terminologicheskij-slovar.html>

4. Tukhfatullin, B.A. Numerical methods for calculating building structures. Finite element method: textbook. manual for academic bachelor's degree / BA Tukhfatullin. - 2nd ed., Rev. and add. - Moscow: Yurayt Publishing House, 2019. -- 157 p. - (Series: Bachelor. Academic course). - ISBN 978-5-534-08899-1. - Access mode: HYPERLINK <https://biblio-online.ru/bcode/442338>

### **11. Methodical instructions for students on mastering the discipline (module)**

1. A course of lectures on the discipline Technology and organization of construction.
2. Methodical instructions for independent work of students in the discipline Technology and organization of construction.
3. Guidelines for the implementation of the course project in the discipline Technology and organization of construction.

### **12. Fund of assessment tools for intermediate certification of students by discipline (module)**

The fund of assessment tools, formed to conduct ongoing monitoring of progress and intermediate certification of students in the discipline Technology and organization of construction, is presented in Appendix 1 to the work program of the discipline and includes:

- a list of competencies formed in the course of studying the discipline;
- description of indicators and criteria for assessing competencies, description of assessment scales;
- typical control tasks or other materials necessary to assess knowledge, skills, abilities and (or) experience of activities, characterizing the level of competence formation;
- methodological materials defining the procedures for assessing knowledge, skills, skills and (or) experience of activities, characterizing the level of competence formation.

*The materials are developed in full and are available for students on the discipline page at the TUIS RUDN University.*

The program has been drawn up in accordance with the requirements of the ES of HE RUDN University.

#### **Developers:**

**Professor at the Department of  
Civil Engineering**



A.P. Svintsov

**Director of the Department of  
Civil Engineering**



M.I. Rynkovskaya