



MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION  
**FEDERAL STATE BUDGETARY**  
**EDUCATIONAL INSTITUTION OF HIGHER EDUCATION**  
**DON STATE TECHNICAL UNIVERSITY**  
**(DSTU)**

**INTERNATIONAL ACADEMIC COMPETITION**  
**FOR MASTER'S APPLICANTS «MASTERSIUM»**

**MASTER'S DEGREE PROGRAM**  
**08.04.01 CIVIL ENGINEERING**

**METHODOLOGICAL RECOMMENDATIONS FOR PREPARATION**  
**TO THE FINAL STAGE OF THE COMPETITION**

**Composed by: Dr. in Technical Sciences, Professor Sheina S.G..\_**

Members of the methodological commission

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**Chairman of the Methodological Commission:**  
Chubarova K.V., PhD, Associate Professor

## **THE FINAL STAGE**

The nature and level of complexity of the Academic competition tasks are aimed at achieving the goals of the Academic competition: identifying and supporting individuals who have shown outstanding abilities; stimulating educational, cognitive and research activities of students; developing students' intellectual and creative abilities; creating the necessary conditions for the formation of a high-quality contingent of undergraduates focused on continuing their academic careers; forming a system of continuous interaction with gifted and talented youth; dissemination and popularization of scientific knowledge; attracting talented young people, including those from foreign countries, to master's degree programs.

The tasks are differentiated in complexity and require different time costs for a correct and complete solution. The tasks are aimed at identifying the intellectual potential, analytical abilities and creative thinking of the participants, etc.

The face-to-face stage of the Academic competition is conducted only in writing. Each participant of the Academic competition receives a task form (if task options are provided, then it is necessary to specify this), containing 5 tasks. When completing tasks, it is required:

1. Specify the reason for choosing this particular Master's degree program
2. Describe in detail the answers to the questions;
3. To show a wide range of knowledge in the field of the subjects studied

When preparing for the Academic competition, the following topics should be revised.

### **THE LIST OF CONTENT ELEMENTS INCLUDED IN THE TASKS OF THE ACADEMIC COMPETITION OF THE FINAL STAGE OF THE 2025/2026 ACADEMIC YEAR**

**Topic 1.** Software for the design of construction facilities

**Section description.** Foreign software in construction

**An example of a question.** Describe the software implementing BIM

**Topic 2.** Resource and energy conservation

**Section description.** Energy-efficient technologies in construction

**An example of a question.** Key energy-saving technologies in the construction of residential buildings

**Topic 3.** Integrated development of territories

**Section description.** International experience in the implementation of integrated territorial development projects

**An example of a question.** Regulatory and legal regulation of integrated territorial development

**Literature for preparation**

1. BIM technology. The essence and features of the introduction of information modeling of buildings: Vladimir Talapov abirint.ru/books/484910/
2. 2. Fundamentals of energy saving Authors: Baitasov R. R.  
<https://lanbook.com/catalog/author/baitasov-r-r/>
3. 3. The standard of integrated territorial development
4. <https://asi.ru/library/dom-rf-standart/>

**Online resources:**

1. <https://www.2m.ru/branches/kompleksnoe-razvitie-territorii>
2. [https://roscongress.org/materials/kompleksnoe-razvitie-territoriy-cto-eto-takoe-i-kak-ono-rabotaet/?utm\\_referrer=https%3A%2F%2Fwww.g](https://roscongress.org/materials/kompleksnoe-razvitie-territoriy-cto-eto-takoe-i-kak-ono-rabotaet/?utm_referrer=https%3A%2F%2Fwww.g)
3. [https://secrets.tbank.ru/glossarij/krt/?utm\\_referrer=https%3A%2F%2Fwww.google.com%2F](https://secrets.tbank.ru/glossarij/krt/?utm_referrer=https%3A%2F%2Fwww.google.com%2F)

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**08.04.01 CIVIL ENGINEERING**

**Verification criteria**

**1. The preamble to the criteria for checking assignments:**

The final stage of the Academic competition according to the program **08.04.01 CIVIL ENGINEERING** It includes 5 tasks **the creative type**.

Each task is rated from 0 to 20 points. The highest total amount of points that can be used to evaluate the answers to all the questions in the Academic competition version, provided that there are no errors, incorrect, incomplete or inaccurate answers, is 100. Incorrect or incomplete answers are rated from 0 to 10 points. Partial points may be awarded for an incomplete answer to a task. Incomplete is an answer that contains correct but incomplete answers to the questions in the assignment. In this case, only a part of the points for correct answers to the task is awarded, corresponding to a fraction of the maximum possible score. The final score for the assignment is calculated by summing up the points awarded for each of the questions.

**2. Assessment criteria for Academic competition assignments (example of assessment):**

<b>Task type</b>	<b>Number of tasks per option</b>	<b>Evaluation criteria</b>	<b>Maximum number of points per task</b>
<b>Section 1. Software for the design of construction facilities</b>			
Question 1 Describe the software implementing BIM	1	Completeness of the software description	20
Question 2 Compare different software implementing BIM	1	Completeness of the response	20
<b>Section 2. Resource and Energy conservation</b>			

Question 1. Energy-efficient technologies in construction	1	Completeness of the description energy-saving technologies in construction	20
<b>Section 3 Integrated territorial development</b>			
Question 1 Regulatory and legal regulation of integrated territorial development	1	Completeness of the review of the main regulatory documents of integrated territorial development	20
TOTAL			100