

“APPROVED”

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**PROVISIONS**  
**of the All-Russian contest of research**  
**and design work “Transport of the Future”**

**I. General Provisions**

1. All-Russian contest “Transport of the Future” of youth research and design work (hereinafter referred to as the Contest) is held with the support of the Ministry of Transport of the Russian Federation, Federal Agency of Railway Transport, Federal Agency of Maritime and River Transport, Federal Air Transport Agency, Federal Road Agency.

2. The Contest is organized by the Federal State budget educational institution of higher education “Moscow State University of Railway Engineering (MGUPS (MIIT))” together with the non-profit organization “Association of transport universities”.

3. The official partners of the Contest are federal executive power authorities, executive bodies of the regional entities of the Russian Federation, local governments, and other organizations. Inclusion in the list of official partners is based on an exchange of letters with the Organizing Committee.

4. The Contest may have information partners from media supporting the Contest.

5. The Contest is held for schoolchildren of 5 - 11 grades of general education institutions of the Russian Federation, students and trainees of vocational educational institutions, implementing educational activities within educational programs of high vocational education and (or) on vocational training programs; as well as of corporate training centers, persons undergoing military service, and other representatives of youth who are not students of higher educational institutions and are under the age of 19 years inclusive.

6. The Contest is held annually in two stages (qualifying stage and final stage). It begins in the year of announcement of the next Contest and terminates during the following year. The name of an edition of the Contest contains designations of the years of its beginning and finishing.

7. General methodical, organizational and information support of the Contest is carried out by the Organizing Committee, the personal composition of which is approved by the rector of MGUPS (MIIT).

The Organizing Committee comprises leading experts from transport industry, scientists, professors and teachers.

The powers of the Organizing Committee include:

- definition of exact dates of Contest stages for the next year, and organizational issues of its holding;
- composition of the central jury of the Contest;
- definition of conditions of the qualifying stage of the next Contest, including identification of regional partners, regional centers of holding Contest formed by regional partners, approval of composition of regional juries of the Contest;
- organization of work of the central jury in the sphere of proceeding of appeals of participants regarding the results of the qualifying stage of the Contest;
- management of the final stage of the Contest;
- approval of the decision of the central jury to determine the winners and awardees of the Contest.

8. The objectives of the Contest are:

- creation of conditions for implementation of creative abilities of the students of general education and secondary vocational education of the Russian Federation, motivating their interest in scientific research activities in all areas related to the objectives of the transport industry;
- growing prestige among the youth of engineering professions associated with construction and design of vehicles and infrastructure, development of new transport technologies, transport construction, transport engineering, other transport-related activities;
- promoting schoolchildren's interest in engineering, technical and ecological culture, interest in the activities of the transport industry, employment in transport and related industries;
- development of design and research activity of pupils in natural sciences and engineering fields.

9. The main tasks of the Contest are:

- to enable participants to realize their creative capacity through implementation of transport-related projects, to receive their praise from professional and scientific community;
- to create conditions for sustainable professional development of young people and promotion of transport job positions and blue-collar jobs;
- to identify the most talented representatives of school youth, having an interest in engineering work and innovation, to create conditions for support of their scientific and technological activities and obtaining further engineering education.

## II. The Organization of the Contest

10. The Contest provides for individual participation and for collective (team) participation with the number of participants in each team not exceeding three people.

11. Individual participants or teams are eligible to participate in the Contest on their own behalf or on behalf of an educational organization. The number of participants from one educational organization is not limited.

12. Official information about the Contest is placed by the Organizing Committee on the website: <http://www.miit.ru/> and, if necessary on a specially created website.

Mandatory published information includes:

- composition of the Organizing Committee;
- a list of co-organizers, partners and sponsors;
- provisions, procedure of Contest stages;
- official announcement of terms and conditions, categories of the current edition of the Contest;
- requirements for entries and procedure for filing in applications for participation in the Contest;
- questionnaire form for participation in the Contest;
- composition of the Central Jury;
- name and address of regional partners;
- electronic and postal addresses of the Central Jury and regional partners (regional juries) for sending of entries;
- procedure for determining winners and awardees;
- information on winners of previous Contest editions.

13. The Contest is held for two types of entries:

- working models, patterns (prototypes, layouts), models of proposed new machinery or processes related to transport (type of Contest: “Working models and patterns”);
- contest in the form of written projects on topics of improving transport equipment and technology, containing features of innovation proposals (type of Contest: “Project works”).

Participants can take part optionally in one type of the Contest or simultaneously in both of them, the results are not summarized and do not affect the determining of winners.

14. Nominations are uniform for all modes of transport, but are separate for the two types of Contest entries.

14.1. For the type of the Contest “Working models and patterns” nominations are:

- models of promising vehicles and their components;
- models and patterns of transport infrastructure;
- technological tools of transportation support (automation, signaling, dispatching, scheduling, etc.).

14.2. For the type of the Contest “Project works” nominations are:

- fundamentally new transport systems;
- urban and regional transport and transportation;
- new transport vehicles;
- resource saving for transport;
- power engineering and electrical engineering;
- transport automation, telemechanics (remote control engineering), robotics and intelligent systems;
- transport and quality of life (well-being), social and economic aspects of transport industry.

The Organizing Committee has the right to change categories, provided that a new list of categories is included in an official announcement about next annual edition of the Contest.

In all those nominations age categories are established for which winners are determined separately:

- from 5 to 8 grade (inclusive) (*up to 16 years*);
- from 9 to 11 grade (or up to 19 years inclusive).

15. The terms and procedure of organizing the stages of the Contest:

I stage (qualifying stage) – in the period from September 1 of the current year until February 1 of the year following the announcement of the Contest;

II stage (final stage) – in the period from February 1 until May 1 of the year following the announcement of the Contest.

The exact dates of stages of the Contest are established by the Organizing Committee annually.

16. The venue of the final stage is gymnasium of MGUPS (MIIT).

### **III. Awarding of winners of the Contest**

17. The winners of the Contest, awarded the 1st place, and awardees, awarded 2nd and 3rd place, are determined in each nomination and in respective age categories.

18. The winners of the final stage of the Contest should be awarded with diplomas for 1, 2, 3 place. For team work (projects), each participant receives an individual diploma indicating his participation in the team.

### **The procedure of Contest stages**

1. The Organizing Committee approves annually the composition of the Central Jury of the Contest, which consists of leading scientists, researchers, representatives of the faculty, employees and managers from organizations and the transport industry.

Responsibility for reviewing works in given nominations is distributed between Jury members.

2. The Central Jury has the following tasks. It:

- considers appeals of participants regarding decisions of regional juries;
- determines the participants of the final stage of the Contest;
- considers live presentation of works at the final stage of the Contest;
- identifies and submits for approval of the Organizing Committee a draft decision on winners and awardees of the Contest;
- provides methodical support for the activity of regional juries.

3. The qualifying stage is based on a regional selection. The Organizing Committee of the Contest asks its regional partners (transport universities and their affiliates, other regional organizations of scientific and technical creativity of youth) to organize regional selection stage. Contest website provides information on these regional centers of the Contest, on distribution of regional centers among regional entities of the Russian Federation for the purpose of filing of applications and consideration of contest entries at the qualifying stage.

4. Contest entries (applications and other documents), as agreed with the organizers, are submitted to the relevant regional center of the Contest.

5. Submission of working models and patterns is also carried out according to the procedure provided for in Annex 2 to the relevant regional center of the Contest.

6. In order to assess the entries each regional center creates regional jury. Its composition is agreed upon with the Central Jury.

7. Deadline for applications is defined in the official announcement of the Contest, posted by the Organizing Committee of the Contest.

8. Evaluation of the entries at the qualifying stage is carried out by members of a relevant regional jury on the basis of absentee review of submitted entries by the jury.

Evaluation of acting models (patterns, layouts) is produced internally, except for the cases, when it is impossible to present a working model at the place of residence of regional jury. A decision on the possibility of assessing the working model on the basis of a set of other materials contained in an entry is made in each the case by a relevant regional jury. This decision of a regional jury does not apply to the final stage (if a given model is selected to take part in the final stage). The

decision on whether a model will be considered in attendee or absentee mode during the final stage is taken by the Central Jury.

If the presentation of the model is considered to be mandatory and the participant cannot present it without good reason (this does not apply to financial costs, which the participant has to bear in any case in person), the application is withdrawn.

According to the decision of the regional jury as agreed upon with the Organizing Committee a regional selection may be held in the form of full-time event.

9. The authors of the best works (entries) in each type of the Contest, nomination and age category (not more than five from the region for each nomination of particular age category), are recommended by a regional jury to participate in the final stage of the Contest.

A regional jury may also present to the central jury a motivated recommendation to accept additional works in excess of specified regional quota for admission to the final stage. Not only the general value of work, but also scores of other participants of the Contest should be taken into account.

10. In case of disagreement of a participant with the decision of the regional jury his appeal by e-mail to the central jury is allowed.

11. The final decision on the composition of the participants of the final stage of the Contest (including additional participants on the recommendation of regional juries and on the basis of appeals) is taken by the Central Jury by agreement with the Organizing Committee.

12. Regional juries send to the Central Jury all materials of recommended and finally approved participants of the final stage of the Contest.

13. The Central Jury sends invitations to selected participants of the final stage.

14. The final stage of the Contest is held in the period from April to May in the form of full-time presentation of entries by participants to the members of the Central Jury.

15. Participants invited to take part in the final stage of the Contest should:  
arrive at the venue of the final stage of the Contest according to the dates specified in the invitation;

prepare a multimedia presentation, or present an oral report to members of the Central Jury with the duration of 5 minutes.

Presentation of entries is made during a public meeting, that can be attended by members of the Organizing Committee, representatives of the founder of the Contest, co-organizers, partners, media representatives, other invited persons.

In the case of team projects, the participants are free to decide the question of arrival of some or all of the team members and should inform organizers thereon.

16. Travel costs of participants of the final stage of the Contest and persons accompanying them to the Contest venue and back, accommodation, meals and other expenses are made at participants' own expense or sponsors fees.

17. In the case if Contest participants selected to participate in the final stage address the Central Jury an inform it of impossibility of personal arrival either of

transportation of the working models, the Central Jury makes a decision in each particular case independently. In case of meeting such a request of a participant not to participate in person either not to present a working model during full-time consideration of competitive projects, presentations are instead submitted made by participants for the qualifying stage or specially prepared for the final stage. The Central Jury considers such by default submitted work on equal terms with other participants, but is not responsible for effects of voluntary refusal of the participant from personal involvement in the presentation of the work, of his (her) inability to participate in the discussion, and thus of deterioration of conditions of participation as compared with other participants.

## **The requirements for Contest entries and the procedure of applying to participate in the Contest**

### **1. Limitations on the number of submitted entries and composition of participants**

1.1. The total number of works submitted by a participant of the Contest cannot be more than 3 (three) for working models contest and 1 (one) for project works contest, regardless of nominations (only individual participation or participation of project groups (teams) with fully matching individual composition is taken into account; while participation of individual competitors in various groups (teams) is not limited).

1.2. When participating in the Contest of working models the basic requirement for a participant is authorship of ideas and of a common project design. Co-authorship with persons, who are not subject to the conditions of participation in the Contest, is not allowed (they cannot be those over 19 years old, university students; researchers, parents). The following exemption from the general rules of participation in the Contest is allowed: participation of any person in practical elaboration of drawings and models, in case when the volume of knowledge of the participant is objectively not enough due to his (her) age or when for construction of models specific technical appliances and accessories are required. At the same time presentation of a clear description of the contribution of each participant, in the first place, of the Contest participant, is mandatory. This contribution should be crucial for the project or creation of the model. Participants who reported false information are suspended from the Contest in all nominations, including the one in which violation was registered.

In written projects participation of other persons, except for members of project teams, is not allowed.

### **2. Requirements for entries**

2.1. **Acting or working models**, patterns and written project works should be presentation, model, computer simulation program or, respectively, description with sufficiently clear technical characteristics, of new (advanced, innovative) transport vehicles, infrastructure facilities, transport systems, engineering processes. The requirement for novelty is mandatory. Models reflecting existing facilities, processes, without any changes that give them a new quality, are not allowed. Assessment of project effectiveness (social, economic, technical) by the participant is mandatory.

2.2. **Computer software** at the discretion of participants may be presented either to a contest of working models, as well as to a contest of project works. The criterion for inclusion is a solvable problem. In case of simulation of new vehicles, processes by means of computer programming the work relates to the contest of working models. In case of solving applied tasks – without the use of simulation



means – to the contest of project works. In case of difficulties to classify an entry, the work is referred to this or that nomination as specified by the decision of regional or central jury.

### **2.3 Requirements for works according to individual nominations**

In the nomination “resource saving for transport” it is required to submit and defense projects, original technical solutions, devices, instruments, developed in the course of independent research, experimental and inventive activities of Contest participants in the field of energy-saving technologies.

In the nomination “energy engineering and electrical engineering” it is required to submit and present projects, operating units, structures, equipment for generation and conversion of energy; electrical equipment to be implemented in industry, agriculture, different transport modes.

In the nomination “transport automation, telemechanics (remote control engineering), robotics and intelligent systems” it is required to submit projects, methods and technical means for transmission and reception of information aimed at distant and remote control, excluding a human presence from operations in a specific process; at development of automated technical systems (robots), complexes of software and logical-mathematical tools to support human activities in the advanced mode of dialogue “man – machine”.

## **3. The procedure for submission of entry applications for participation in the Contest**

3.1. Regardless of a nomination and type of contest works the participants should submit to the organizers by email addresses provided in the official announcement of the current edition of the Contest in electronic form, and in the form of printed and personally signed documents to the mail address (organizers are not responsible for the operation of post office, please select the type of mail to guarantee reliable delivery) an application, containing documents in accordance with the following list:

- application form of the Contest participant;
- abstract of contest work and presentation;
- project work.

3.2. **Application form** is filled as follows (when sending electronically file name should be “family name of the first author with initials. Application form”).

<b>APPLICATION FORM</b>		
<b>of a participant in the Contest of research and design work “Transport of the Future”</b>		
1.	The name of the first author in full, place of study, home address, phone number, e-mail, date of birth (DD / MM / YEAR)	
2.	The name of the second author in full, place of study, home address, phone number, e-mail, date of birth (DD / MM / YEAR) <sup>1</sup>	
3.	The name of the third author in full, place of study, home address, phone number, e-mail, date of birth (DD / MM / YEAR)	
4.	Type of Contest work (check as appropriate) <sup>2</sup>	Working models and patterns Project works
5.	Age category <sup>3</sup>	Up to 14 years Up to 19 years inclusive
6.	Nomination <sup>4</sup>	
7.	Title of the work:	
8.	Organization (check as appropriate and fill in if necessary)	Individual participation Organization <sup>5</sup> _____
9.	Additional notes <sup>6</sup>	

<sup>1</sup> Fields 2 and 3 are filled when collective (team) work is submitted.

<sup>2</sup> When participating in several categories, types of contest works separate application forms are filled in each case.

<sup>3</sup> Determined by age of the oldest team member upon filing application

<sup>4</sup> Should comply with approved list of nominations of the current edition of the Contest

<sup>5</sup> To be filled at discretion of participants, if they are officially supported by the organizers

<sup>6</sup> In particular, here it is necessary to describe participation of persons, who are not Contest participants, in construction of practical model, in accordance with par.2 of Provisions. Exact characteristics of the model should be mentioned in accordance with par.5 of the Annex.

I hereby confirm consent to participate in the Contest in accordance with the Provisions thereon on terms and conditions set forth in the official announcement of the Contest edition, originality and authorship of the submitted contest work, consent to processing and storage of my personal data within the limits, established by the legislation of the Russian Federation for use in the purpose of the Contest, the publication of my name, place of study and title of work for the purposes of public announcement of the winners.

Date, personal signature \_\_\_\_\_ (full name) <sup>7</sup>.

I hereby confirm that the contest work is set forward by \_\_\_\_\_ (name of the educational institution) and the authors have a right to refer to it in the course of the Contest.

Date, personal signature \_\_\_\_\_ (full name)

Position \_\_\_\_\_ (indicating position and organization)<sup>8</sup>”

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<sup>7</sup> To be filled by each team member personally, individually. In case of minor participants should be signed by the legal representative (indicating reasons – blood relationship, judgments, etc.).

<sup>8</sup> To be filled if the contest work is put forward by an organization.

### **3.3. Abstract and presentation of the contest work**

When sending electronically file name must be “family name of the first author with initials. Abstract”.

The abstract should contain in its title names of the participants and the title of the contest work in accordance with the application form.

The volume of the abstract should not exceed 1000 characters.

The abstract should give a clear idea about the purpose and results of the work, its originality, advantages and merits, taking into account that it can be posted on the website of the organizers of the Contest, and be used to represent to public works of participants.

Submission of the presentation is not mandatory, but highly desirable, volume of the presentation should not exceed 15 slides of the main content (not counting the title slide) in the format \* ppt. or \* pptx. When sending electronically, file name should be “family name of the first author with initials. Presentation”.

Submission of the abstract is mandatory when presenting working models.

### **3.4. Project work**

When sending electronically, file name should be “family name of the first author with initials. Project”.

Project work is a more complete presentation of project or plan, purpose of creation, description of operating principles of working models, computer programs.

Its volume should not exceed 40000 characters (format \* .doc, Word 97-2003, and newer, sesquialteral interval, «Times New Roman» font, 14 pt, paragraphs indented, automatic hyphenation, margins 2 cm on all sides of the sheet, page numbering is required, only well-known abbreviations are allowed in the text).

The number of illustrations in text of the work (including photographs, pictures, charts, drawings, diagrams) should not be more than 15.

In a contest work “project work” individual illustrations *may be sent* as an attachment (file “family name of the first author with initials. Additional illustrations”), but the jury considers additional illustrations only when necessary.

In a contest work “working models” submission of photo and / or video materials is mandatory. Volume of materials in electronic form should not exceed 30 MB. If it is necessary to send materials of greater volume it should be agreed upon in advance with the organizers of the Contest. File name should be “family name of the first author with initials. Model photo (or video) materials”.

When sending a computer software program, a file name should be “family name of the first author with initials. Program”. It is necessary to include in the abstract or in the project work a distinctive chapter with conditions of its launching (a separate file may be attached), e.g. requirements for hardware, software, loading etc. If the program should operate under special software environment, this should be specified.

### **3.5. Specific requirements for presentation of working models and patterns**

When applying with a working model (except for computer programs) the model itself is not sent. The order of its presentation is agreed upon with the organizers. To do this, the authors should specify in the application form a description of the main model parameters (dimensions, size, weight, type of engine, transportation possibilities), and in order to consider its physical presentation at qualifying and final stages, to coordinate with the organizers of qualifying and final stages of the Contest technical possibilities to submit a model.

In addition to documents filing requirements which are common for all nominations, in case of working models, the participants should submit in the application for participation in the Contest (para. 3.4 Annex) photos or video, giving a complete picture of the model, features of its design and operation.

All expenses for transportation of the working model to the venue of the Contest (qualifying and final stage) and return to the place of residence are borne by the Contest participant or his legal representatives.

Contest organizers assume no liability for delivery of working models. Issues of damage to the working models caused in the course of the Contest, are solved in accordance with the civil law of the Russian Federation. Organizers are not responsible for the acts of the third parties.

**3.6. The intellectual property rights of the authors of contest works** are reserved by them in full. Organizers have the right to publicly show contest works to the unlimited public, to post information about works on the website of the organizers and partners of the Contest, to publish information thereabout in the media. Organizers and the founder are not responsible for the acts of third parties that violate the legal rights of Contest participants.

## **The procedure for determining the winners and awardees**

### **1. The assessment procedure of Contest works**

1.1. Determination of results of participation in the Contest is performed by the sum of scores received by participants for assessment of contest work at qualifying and final stage and for its personal presentation.

1.2. Regional and Central juries assess a contest work of a participant (of participants in case of a team project) by the following main criteria:

#### **Model of assessment and form of assessment sheet of a contest work**

Criterion for project work	Criterion for working model	Maximal scores
relevance of the topic, of a development		5
novelty, originality, authenticity of approach		10
presence of elements of research approach, creative search	originality of technologies and constructive solutions	5
personal contribution of the author	personal contribution of the author	10
elaboration of issues within specified topic	degree of completion of work, elaboration of the model	5
estimated efficiency	technical parameters of the model, reliability	10
integrity and completeness of representation in submitted documents of content and results of work	completeness of model representation in documents (for absentee consideration); model design, clarity of model description in documents (at internal representation)	10

Extensive knowledge, composition of the report, consistency of presentation, quality of presentation at submitting work (either quality of the abstract or presentation at absentee submission)		5
Title of contest work (or assigned code)		
Nomination		
Age category		
Total scores		

1.3. Composition of criteria and their weight ratios may change at decision of the Central Jury prior to official announcement of the next edition of the Contest and cannot be changed until it is completed.

1.4. Places awarded to participants of the Contest at all stages are determined by the sum of scores, considered separately for type of contest works, nomination, age categories.

## **2. Awarding of winners**

2.1. The winners and awardees of the final stage of the Contest will be awarded with diplomas respectively for 1, 2, 3 places. For team work (projects), each participant receives an individual diploma indicating the participation in the team.

2.2. Additionally, may be awarded at the discretion of the Central Jury educational institutions, if the students thereof have collectively achieved significant success in the Contest.

2.3. Diploma of the winner or awardees of the Contest can be considered as an individual achievement and taken into account while admission to the University in accordance with Procedure for admission of citizens for training for educational programs of higher education approved annually by Russian Ministry of Education and Science.

2.4. All participants receive a certificate of participation in The Contest of research and design work “Transport of the Future”.

2.5. Sponsors and official partners of the event may at their own discretion award the winners of the Contest or set additional nominations (non-official categories of the Contest).