DIRECTORATE GENERAL OF VOCATIONAL AND TECHNICAL EDUCATION

100 CENTURY OF EDUCATION

TÜBİTAK

TİKA

INTERNATIONAL MEB ROBOT COMPETITION

17th INTERNATIONAL MEB ROBOT COMPETITION

OPEN PROJECT CATEGORY RULES

2025

Education, Technology, Production from Roots to the Future

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OPEN PROJECT CATEGORY RULES

1. GENERAL INFORMATION ABOUT THE COMPETITION

1.1. Objective

Robot Project Competition is organised in the Free Category within the International Robot Competitions in order to create an environment where vocational and technical education students at secondary and higher education level can present their knowledge and skills, dreams and dreams by transforming them into reality with entrepreneurial scientific thinking

The category "Open Project" addresses the following skills:

- ***Innovation***: It enables students to produce original ideas by using their imagination and innovative thinking capacities.
- ***Scientific Thinking and Problem Solving****:* It supports the ability to analyse problems with scientific methods, design and implement solutions.
- ***Technical and Engineering Skills:*** Provides the opportunity to develop technical knowledge and application skills in the fields of robotics and electronics.
- ***Entrepreneurship:*** It encourages students to transform their original ideas into projects and present them with an entrepreneurial approach.
- ***Teamwork and Collaboration:*** Since projects are usually realised through teamwork, students develop communication, role sharing and cooperation skills within the team.
- ***Project Management and Organisation:*** It covers the skills of planning project processes, time management and goal achievement.
- ***Presentation and Communication Skills:*** Allows students to effectively present their projects and express their ideas.
- ***Research and Development (R&D):*** Gains the ability to develop technological and scientific solutions by researching a specific subject in depth.
- ***Interdisciplinary Working:*** Supports the creation of integrated projects by bringing together knowledge and skills from different fields (e.g. software, mechanical, electrical, design).

- ***Self-confidence and Motivation:*** The process of realising and presenting their own ideas increases students' self-confidence and motivates them for bigger projects.

This category contributes greatly to the development of students' individual talents as well as their teamwork and co-production skills.

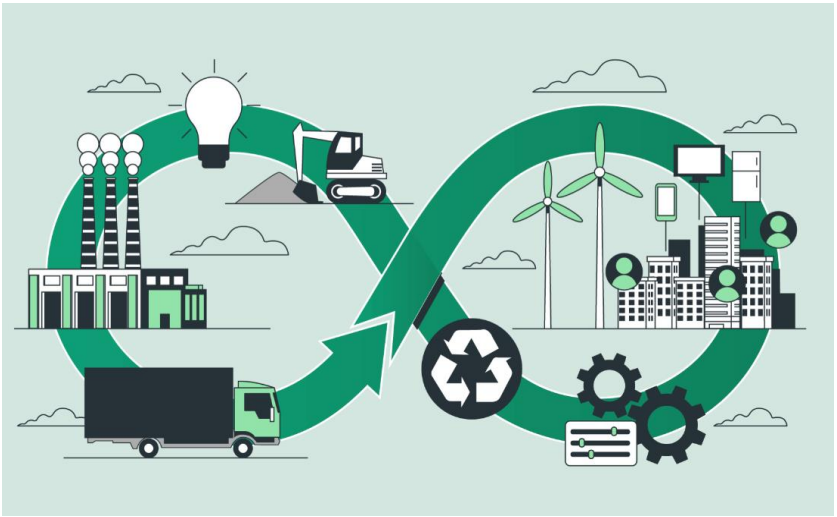
2. PROJECT SUBJECTS

17th International MEB Robot Competition Free Project Category will be organised in 4 groups. These are

- Twin Transformation (Digital and Green Transformation)
- Artificial Intelligence Supported Robots and Autonomous Systems
- Environment and Energy Technologies
- Social Responsibility and Charity Technologies

2.1. Twin Transformation (Digital and Green Transformation)

Projects that integrate digital transformation and green transformation processes aim to improve efficiency and competitiveness through technological innovations while increasing environmental sustainability.



We expect applications to clearly demonstrate how digital technologies are used to minimise environmental impacts, optimise energy and resource consumption, reduce carbon footprint and take concrete steps to support the transition to a green economy. It is critical that project proposals provide innovative, feasible and scalable solutions in both environmental and technological aspects.

2.2. Artificial Intelligence Supported Robots and Autonomous Systems

These projects aim to develop robots and systems capable of autonomous decision-making, analysis and task execution by integrating artificial intelligence technologies.

Applications should describe in detail how artificial intelligence and robotic systems are combined and how these systems contribute to the improvement of industrial processes, safety enhancement or the solution of challenges in everyday life. Projects are expected to include innovative algorithms, data analytics and autonomous operation capabilities, but also to make a difference in aspects such as human-robot interaction or system security.

2.3. Environment and Energy Technologies

These are projects that focus on the protection of natural resources, reduction of environmental impacts and development of sustainable energy solutions.

Applications should describe in detail how renewable energy generation, energy storage, energy efficiency or environmental protection technologies are innovatively addressed and applied. Projects are expected to deliver tangible environmental benefits, such as reducing carbon emissions, optimising resource use, waste management or supporting the circular economy. In addition, the contribution of these technologies to social and economic sustainability is an important evaluation criterion.

2.4. Social Responsibility and Charity Technologies

These are projects in which technology is used effectively to produce solutions to social problems, support disadvantaged groups and increase social benefit.

The applications should explain in detail how the technologies developed have an impact in areas such as eliminating social inequalities, accessibility, education, health, disaster relief or humanitarian aid and how they support social responsibility goals. The projects are expected to offer innovative and sustainable solutions, create measurable social impacts and provide a lasting benefit by raising awareness in the society.

3. Competition Format and Evaluation Criteria.

3.1. Application Process

Competition applications are made according to the process and principles specified in the Application Guide. Projects that meet the conditions specified in the Application Guide will be able to participate in the competitions.

3.2. Competition Stages and Evaluation

3.2.1. Competition Stages:

The competition process proceeds as the preparation and presentation of the projects and the determination of the ranking by the jury evaluation. Firstly, the competitors prepare their project reports and upload them to the robot.meb.gov.tr system until the date specified in the Application Guide. As a result of the preliminary evaluation by the jury, the finalist projects are determined and announced.

The finalists prepare their projects by supporting them with posters, brochures and, if necessary, 3D design models. The projects exhibited in the exhibition hall are evaluated by presentations made in front of the jury. The jury creates a ranking according to the points given to the projects by the jury.

3.2.2. Evaluation and Scoring System

- The projects determined to be prepared in accordance with the plan will first be pre-evaluated by the relevant technical team consultants through the "Free Project Report". Additional time may be given by the technical team for projects that are found deficient in this evaluation.
- The projects are expected to originate from the original ideas of the students, to be shaped by them, to be completed in consultation but with their own knowledge and skills. In the projects that are determined not to be so, the project owner students and counsellors will be eliminated from the competition.
- Free project category jury members will consist of academic staff to be selected by TÜBİTAK from our universities.
- The projects invited to the final will exhibit their projects to the participants at the tables / sections allocated to them in the exhibition area. The projects will be audited by two independent auditors without prior notice and without stating that they are auditing.

Supervisors projects;

- Presentation of the project and presentation performance of the competitors for the visitors to their stands (10 P)
- Posters and brochures explaining the project (10 P)

will make a score on the subjects.

- Free project category robots/projects will be evaluated over a total of eighty (80) points by the jury members of each field, taking into account the following criteria;
  - Innovation (15 P)
  - Design (Performance, Cost, Simplicity) (15 P)
  - Applicability (15 P)
  - Relevance of the Project (15 P)
  - Presentation Performance (20 P)

Evaluation Criteria	***Stand Evaluation***	***Jury Evaluation***
Promotional performance of the project, made for visitors	10	
Posters and brochures explaining the project	10	
Innovation		15
Applicability		15
Design (Performance, Cost, Simplicity)		15
Relevance of the Project		15
Presentation Performance		20
Interim Total	***20***	***80***
General Total	***100***	

- Considering the scoring table above, the scores given by the independent auditors and the scores given by the jury committee will be totalled and announced as the evaluation score. The first, second and third winners of the competition will be determined.
- In case of equality of points as a result of the evaluation, the jury may call the contestants again to make a presentation.

3.3. Description of Tasks

- Secondary education, associate degree and undergraduate students will be able to participate in the free project category.
- Teams to participate in the competition are determined within the framework of general rules.
- All competitors are obliged to follow the announcements to be made at http://robot.meb.gov.tr.

- It is the responsibility of the competitors to fill in and upload all documents in the required time and format.
- All competitors will upload their project reports for preliminary evaluation to the system at robot.meb.gov.tr until the date specified in the Application Guide.
- According to the preliminary evaluation results, the finalist projects will be determined on the date specified in the Application Guide and will be announced on http://robot.meb.gov.tr.
- As a result of the preliminary evaluation, the competitors invited to the final competition must create poster, brochure, presentation explanatory text and, if necessary, 3D design models of their projects.
- The projects will be exhibited in the exhibition hall. It is the responsibility of the competitors to transport the project to the presentation hall.
- Each competitor has to make a maximum 10 minute project presentation and video/slide show to the jury members in the order of the draw.
- The equipment required during the presentation such as computer and projection device etc. will be provided by the organisation. Technical equipment foreseen to be used other than these will be provided by the competitors.
- By applying;
    - That he/she used his/her own ideas, knowledge and skills in the selection of the subject of the project, in his/her approach to the problem, in his/her thinking and implementation,
    - Receiving limited help from the counsellor teacher and related people for the problems encountered,
    - That the project was entirely their own,
    - That you have not participated in another project competition with the same project before the deadline of this competition,
    - They are deemed to have accepted that they have prepared it in accordance with the rules specified in the application guide.

3.4. Disqualifications

- Projects that have participated or applied to any other project competition with the same or other names and/or with the same or similar content (subject) before the deadline of this competition cannot participate in this competition. Projects that are determined to have participated or applied to another competition with the same project before the deadline will be eliminated from the competition, regardless of the stage. If any, their vested rights will be revoked.
- Students participating in the TUBITAK Secondary Education Students Research Projects Competition with the same project are not considered valid.
- The Competition Organising Committee has the right to change the rules when it deems necessary.

3.5. Safety Precautions

The security of the projects to be exhibited in the Free Project Category is of great importance for both the participants and the organisation. For this reason, the following security measures will be taken:

3.5.1. Prototype and Device Security

- All necessary precautions will be taken by the competitors to ensure that the prototypes or devices exhibited are not damaged and operate safely.
- The equipment used in prototypes should be safe, with particular attention to sharp or pointed parts, and should be supported with protective coatings where necessary.
- In electrically operated projects, regular operation of circuit elements should be ensured and safety checks should be made to prevent short circuit and overheating.

3.5.2. Electricity and Energy Security

- Each stand will be equipped with an electrical socket and competitors will plan their energy needs accordingly.
- If the use of extension cords and adapters is necessary, this equipment must comply with the standards and must not pose any safety risk.
- The energy sources used in the projects will be pre-tested to prevent problems such as electrical leakage or circuit failure.

- In case of electrical faults, the authorities must be informed and the competitors must not intervene.

3.5.3. Competitor Safety

- Competitors must be careful when transporting or installing their projects and must follow safety rules when handling heavy or delicate parts.
- Protective equipment must be worn when working with electrical or mechanical components.
- Any interventions to the project during the competition must be approved in advance and must be within the knowledge of the organisation.

3.5.4. Visitor Security

- The working area of all prototypes will be clearly marked to ensure the safety of visitors during the presentation of the projects.
- Safety barriers or warning signs shall be used in projects with moving parts.
- During the project exhibition, small children or unauthorised persons must be prevented from interfering with the devices

4. Exhibition and Presentation Area

4.1. Exhibition Area

- There will be a table of sufficient width for each project.
- The project can be exhibited on the table.
- Each table will have 2 chairs.
- Each stand will have one electrical socket.
- The team name and project name will be clearly visible on the table or stand.

5.2. Presentation Area

- Projection Device or LED Screen
- Sound System
- Computer
- Presentation Platform
- Electrical Sockets and Extension Cables in case of need

5. CONTACT

5.1. Contact Us:

The general rules regarding the competition applications and the Free Project Category are given in the "Application Guide". It is absolutely necessary to read the Application Guide before making an application.

Competitors should ask their questions by selecting their categories from the information menu after logging into the robot.meb.gov.tr system. Questions other than category messages will not be answered and no responsibility will be accepted.

5.2. Frequently Asked Questions

- **What are the requirements for application?**

  Applications must be made according to the conditions specified in the Application Guide. Participants are required to upload their projects to robot.meb.gov.tr until the specified application date.

- **How can I participate in the competition?**

  For participation, you need to upload the project report and other necessary documents to the competition system (robot.meb.gov.tr). The detailed application process is explained in the Application Guide.

- **Can I get information about the content of the project report?**

  The project report should contain all the details of the project you have developed. This includes information such as technologies used, project objectives, innovative elements and environmental/social benefits. The report should be in a specific format and of a certain length.

- **How will the finalist projects be selected?**

  The preliminary evaluation will be made by analysing the project reports. Finalist projects will be announced on robot.meb.gov.tr. Finalist projects should be presented with poster, brochure and 3D design models if necessary.

- **How will the projects be presented?**

  The finalised projects will be presented to the jury members in the exhibition hall. Participants should present their projects by supporting them with posters,

brochures and necessary 3D models. During the presentation, a detailed explanation about the projects will be made and evaluated by the jury.

- **Who can participate in the competition?**

  All participants who fulfil the conditions specified in the Application Guide can apply to the competition.

- **How does the jury evaluate?**

  The jury evaluates the projects according to various criteria. The Jury score is determined by averaging the scores of the Jury members who score independently of each other.

  These criteria are Innovation (15 P)
  Design (Performance, Cost, Simplicity) (15 P)
  Applicability (15 P)
  Relevance of the Project (15 P)
  Presentation Performance (20 P)

- **Is there a budget limitation for the project?**

  There may be no limit on the budget of the projects, but projects are expected to be realistic and feasible.

- **I have presented my project in another competition before, will this be a problem?**

  It is among the conditions that the projects should not have participated in another competition before. It should be ensured that the projects are original and offer an original solution. It is important to check the application requirements carefully.

- **What should I do if I miss the application deadline?**

  If you miss the application deadline, unfortunately your application will not be valid. It is important that applications are submitted on time. We recommend that you pay attention to the dates specified in the application guide.

ANNEX-1 Matters to be Considered While Uploading the Free Project Category Report to the System

17th International MEB Robot Competition Free Project Category project reports will be scored in detail by the jury in the pre-selection stage. Therefore, it is of great importance to prepare the report in accordance with the specified format and content. The report should clearly express the scope, innovative aspects, methods and expected results of the project and should include the following sections. It should be made more understandable by supporting it with visual elements (diagrams, graphics, photographs, etc.) when necessary.

Summary

This section should be an introduction summarising the general framework and main purpose of the project. The summary should explain the methods and procedures followed for the realisation of the Free Project idea, the validation processes used, such as modelling, simulation, testing, prototyping. In addition, the results obtained or expected to be obtained should be expressed together with the contributions provided by the project. The abstract should present a short, clear and effective narrative and the word count should not exceed 250.

Objective

In this section, the main objectives of the project should be elaborated. In particular, the following questions should be answered:

- What is the main reason for starting the Free Project category?
- What benefits will be realised upon successful completion of the project?
- Where and for what purpose will the results of the project be used?
- Economic evaluations of the project (e.g. cost analysis, competitiveness, savings rate and benefit/cost ratio) should be explained with concrete data.
- The contribution of the project output to the sector, national level organisations or the country should be expressed in detail.

This section should demonstrate not only the technical but also the economic and social value of the project.

The element of novelty contained in the Free Project

The innovative aspects of the project should be clearly emphasised. The following points should be addressed in this section:

- In which of the categories of international, national or firm-level innovation does the project idea fall?
- In which ways does the product, method or process that is the output of the project differ or excel compared to existing solutions?
- Do the intermediate or final outputs of the project have the potential to be evaluated in terms of intellectual property rights such as patents and industrial designs?
- What are the differences or advantages of the project with the previous registrations?

This section should provide concrete examples of how innovative approaches contribute to the value of the project.

Methods and Methods Used in Free Project Preparation Phase

The methods, procedures and tools used in the realisation of the project should be described in detail in this section. The following points should be emphasised:

- What are the methods and techniques used for the solution?
- How were verification processes such as modelling, simulation, testing and prototyping carried out?
- What are the activities carried out to test the accuracy or validity of the outputs of the project?

This section should describe the technical background and process management of the project and present the scientific basis for the approaches used.

Business, Process and Planning

The plan and process management followed during the implementation phases of the project should be described in this section. The following elements should be addressed:

- What are the activities carried out within the scope of the project and in which time period were these activities realised?
- How is the distribution of tasks and responsibilities determined?
- The project schedule and plans for the management of the process should be expressed in visual material (e.g. Gantt chart).

This section should clearly show the organisational structure of the project and the strategic planning followed throughout the process.

Conclusion

In this section, the results achieved or expected to be achieved at the end of the project should be evaluated and interpreted. In particular, the following questions should be answered:

- How do the project results relate to the intended objectives?
- What are the applicability and sectoral contributions of the project?
- If the project outputs have been implemented in industry, the data and results obtained to date should be presented in this section.

These assessments should demonstrate the real-life impact and implementation potential of the project.

Sources Utilised

This section lists all references used in the preparation of the project. Books, articles, technical reports, online resources and other references used should be given in bibliography format in accordance with international standards.