

PRESENTATION

Dear Students,

Between 1857 and 1935, the distinguished scientist Konstantin Tsiolkovsky, who lived far ahead of his time, conducted pioneering research on space technologies that he envisioned. His writings on interplanetary travel and space elevators have served as an inspiration for generations long after his era. His statement, "*Mankind will not forever remain on Earth but, in the pursuit of light and space, will first timidly emerge from the bounds of the atmosphere and then advance until he has conquered the whole of circumsolar space.*" became a source of inspiration for lunar expeditions. In 1969, Neil Armstrong became the first person to set foot on the Moon, marking a historic milestone and paving the way for subsequent lunar explorations. During this period, scientists shared a common goal: to establish a lunar base that would enable more comprehensive scientific research on the Moon's environment.

With the advent of the golden age of space exploration, the notion of the Moon being solely a site for scientific research has lost its exclusivity. Advancements in space technologies have facilitated the emergence of new scenarios regarding the Moon's potential. The idea of making the Moon a habitable environment beyond Earth has rendered it even more intriguing for scientists. Today, extensive research is being conducted to establish a sustainable and permanent human presence in space, with a particular focus on lunar habitation. On the other hand, every discipline and profession plays an essential and evolving role in shaping societal structures from different perspectives. In both global and national contexts, students of design-related disciplines—such as architecture, civil engineering, and other fields of design—have already begun following contemporary developments in engineering and architectural techniques to establish sustainable living environments beyond Earth, particularly on the Moon. Raising awareness about how to create habitable spaces under lunar conditions, enhancing students' skills and creativity in space architecture, and encouraging them to explore architectural works and structures designed for extraterrestrial habitation have become increasingly significant for design students.

Thus, we invite students from all design departments of universities at the national level to "***push the boundaries of reality and imagination and contribute to a visionary perspective on the future of human settlement on the Moon***". We firmly believe that this design competition will not only provide fresh insights for space industry representatives but also foster new perspectives within university design programs. With these thoughts and sentiments, I extend my best wishes for success to all participants, expressing my gratitude for your contributions and dedication. I also sincerely congratulate all students who have demonstrated the courage to participate in this competition. Furthermore, I would like to extend my appreciation to all esteemed faculty members serving on the evaluation jury for their invaluable contributions.

**Honorary President of the Competition
Prof. Dr. Mustafa Aydin**

COMPETITION SPECIFICATIONS

GENERAL CONDITIONS

1. Competition Theme:

Since the beginning of humanity, an inexplicable affinity has been developed toward various celestial bodies in our surroundings, with the Moon occupying a central position in this fascination. Human curiosity and admiration for the Moon date back to the Stone Age, manifesting through cave paintings, literature, astronomy, astrology, architecture, engineering, and numerous other disciplines. As Earth's longstanding and significant companion, the Moon has become the only celestial body beyond our planet to have been visited by humans. In the current era, where cutting-edge technologies are reaching unprecedented heights, space research continues at full speed to ensure the permanence and sustainability of human presence in space.

With the advent of the golden age of space exploration, the necessity for architects and engineers to contribute to establishing human settlements beyond Earth has become increasingly evident. In this context, "*Space Architecture and Space Engineering*," which has emerged as a significant area of interest in the 21st century, focuses on the design and construction of habitable environments in space. Fundamentally, space construction is rooted in engineering. While engineers have succeeded in sustaining human presence in space, existing solutions remain insufficient, necessitating the collaboration of design engineering and space architecture. Leading space organizations such as the National Aeronautics and Space Administration (NASA), Space Exploration Technologies Corporation (SpaceX), Indian Space Research Organisation (ISRO), China National Space Administration (CNSA), and Blue Origin have already begun unveiling ambitious plans to transport humans to the Moon and Mars and establish permanent settlements in these extraterrestrial environments.

The theme of the "*Lunar Habitat Student Concept Design Competition*" is to design the necessary structural framework and spatial facilities that will enable a crew of 20 researchers conducting scientific investigations on the Moon (**independent of research facilities/laboratories**) to live for at least three months. The designed spaces should cater to the fundamental living needs of the users, including resting, dining, sleeping, physical activity, healthcare, recreation-communication-interaction, hygiene (bathroom, toilet), and storage for essential resources such as air, water, fuel, and waste management. Participants are expected to address the following aspects in their proposed projects:

- The functional purpose and usability features of the designed structure or group of structures.
- Solutions addressing the structural, shell, and functional aspects of the proposed space habitat, taking into account environmental challenges such as high radiation exposure, low gravity, sudden temperature fluctuations, internal-external pressure differentials, and potential meteorite impacts.
- Technical specifications of the proposed structure and its surrounding environment, including spatial dimensions, interrelationships of functional areas, material selection, and construction technology.

2. Objectives and Goals of the Competition:

The primary aim of this competition is to contribute to the education of design disciplines in our country by fostering awareness among architecture, civil engineering, and other design students regarding how contemporary advancements in engineering and architectural techniques can be adapted to lunar conditions to establish sustainable living environments beyond Earth. Furthermore, the competition seeks to develop students' skills and creative thinking in space structures and encourage research into architectural works and structural designs for extraterrestrial habitation. Additionally, the initiative aims to bring together talents from different disciplines, emphasizing the importance of collaborative efforts in envisioning humanity's future in space.

3. Participation and Application Requirements:

- The competition is open to undergraduate third- and fourth-year students and graduate students enrolled in architecture, civil engineering, interior architecture, industrial design, and aerospace and aviation programs at higher education institutions affiliated with the Council of Higher Education (*YÖK*) in *Türkiye*, the *Turkish Republic of Northern Cyprus (TRNC)*, *Hoca Ahmet Yesevi Turkish-Kazakh University*, *Kyrgyzstan-Turkey Manas University*, *Uzbekistan Polytechnic University* and *Azerbaijan Architecture and Construction University* participants must provide a valid student ID as proof of enrollment.
- Students may participate in the competition as a team.
- Each team must include at least one architecture student and one civil engineering student. **The team representative must be an architecture student.**
- Applications must be submitted to the competition reporting office of the "*Lunar Habitat Student Concept Design Competition*" via the online application portal at www.ayda-yasam-alani-yarismasi@aydin.edu.tr. Applicants must complete the "Competitor Participation Form," providing the name of the participating student on behalf of the team, university, faculty, department, and contact details.
- Submitted projects will not be returned to participants. Competitors acknowledge that Istanbul Aydın University holds the publication and reproduction rights of all submitted projects.
- Projects must be submitted within the designated application period and in compliance with the specified format.
- By participating in the competition, students are deemed to have accepted the competition rules.
- Participation in the competition is free of charge.
- Istanbul Aydın University, as the organizing institution, reserves the right to cancel or postpone the competition partially or entirely if deemed necessary. In the event of cancellation or postponement, the organizing body retains the authority to establish the procedures and regulations to be applied. Additionally, the institution holds the right to revise any rules, including those related to project submission, program changes, evaluation criteria, and awards, provided that participants are informed in writing at least one week before the final submission deadline. ayda-yasam-alani-yarismasi@aydin.edu.tr.

4. Competition Type:

The competition is a national, single-stage student design competition.

5. Information and Documents Provided to Participants:

The competition guidelines can be accessed through the announcement on the Istanbul Aydın University website (iauayda-yasam-alani-yarismasi.aydin.edu.tr) and via the shared link.

- Pre-Registration Process: Each team member must submit a digital identity file, which includes their personal identification details and undergraduate student certificate. The team representative must send these documents to the competition secretariat via email at (ayda-yasam-alani-yarismasi@aydin.edu.tr)
- The email subject line must include “Digital Identity File.”
- Participants will receive an email confirmation from the competition secretariat once their submission has been received. Teams that do not receive this confirmation will be considered ineligible for participation.
- The competition secretariat is not responsible for unreadable or inaccessible files.
- Student certificates must be obtained from the enrolled institution, scanned, or digitally retrieved through e-government (e-Devlet) services.

6. Requirements for Participants:

Participants are required to submit the following:

- Schematic representations illustrating the proposed design approaches.
- Site plan (1:200 scale) depicting the spatial relationship between the proposed structural system and its immediate surroundings.
- Floor plan(s), a sufficient number of sections and elevations to express the design concept (1:100 scale).
- System detail drawings (1:20 scale) illustrating the construction system and structural components, prepared as plans, sections, and elevations.
- A physical model of the proposed structure and its immediate environment (1:200 scale).
- Three-dimensional drawings adequately explaining the project.
- A1-size presentation boards containing an explanatory report (maximum 500 words) on the architectural and structural design solutions. The report should include functional characteristics of the site, architectural approaches, and the structural and material feasibility of the system.

7. Submission Format and Delivery Location:

Projects (physical prints), identity envelopes, a USB flash drive containing the entire project, and a model must be placed in protective packaging to prevent damage from external factors. These materials must be delivered in person or via courier to the address specified below.

Submission Format:

The project, along with its attachments (architectural-structural explanation report and USB flash drive) and model, must be submitted as follows:

- A1 size (594 x 841 mm)
- Maximum of 3 boards (all in portrait orientation)
- PDF and JPEG formats (300 dpi resolution)
- The top-right corner of each board must display a five-digit code determined by the participant (There should be no identifying information about the student on the boards).
- The identity envelope must have the same five-digit code as the project and be labeled “*Lunar Habitat Student Concept Design Competition.*” The envelope must contain the names, university, faculty, department, class, and contact details of all team members (No additional text or markings revealing the participants’ identities should be present on the envelope).
- The model must also display the same code as the project boards in an appropriate location.

Delivery Address:

The project and its attachments must be hand-delivered to the competition secretariat at: Istanbul Aydın University, Halit Aydın Campus, Florya Beşyol, Küçükçekmece, Istanbul, K-Block, Basement Floor, Room No: 7007.

For courier deliveries, projects must arrive before the final submission deadline.

Courier Address:

Istanbul Aydın University, Halit Aydın Campus, Florya Beşyol, Küçükçekmece, Istanbul.
(Internal contact numbers: 13202 or 28810)

8. Jury Members

Principal Jury Members:

- Prof. Dr. Ahmet Metin Ger (*Senior Civil Engineer*)
- Prof. Dr. Yusuf Cengiz Toklu (*Senior Civil Engineer*)
- Prof. Dr. Ayşe Sirel (*Senior Architect*)
- Burak Yağlıoğlu (*TÜBİTAK Space, Lunar Research Program Manager*)
- Asst. Prof. Dr. Saba Matin Aygören (*Senior Architect*)

Alternate Jury Members:

- Prof. Dr. Cem Aydemir (*Senior Civil Engineer*)
 - Prof. Dr. Zülküf Güneli (*Senior Architect*)
- Secretariat (Reporters):
- Research Assistant Berfin Yılmaz (*Senior Architect*)
 - Mazem Balaban Yılmaz (*Senior Civil Engineer*)

9. Competition Schedule:

- Competition Announcement:
- Final Registration Deadline: April 18, 2025
- Last Date for Inquiries: May 9, 2025
- Project Submission Deadline: May 16, 2025, by 17:00
- Announcement of Results: Within 15 days
- Award Ceremony, Exhibition Venue, and Date: To be announced with the competition results.

10. Evaluation Criteria:

Project evaluations will be conducted based on compliance with the submission format, originality, and authenticity. Projects found to be non-compliant with the competition requirements or identified as plagiarized will not be considered for evaluation. Eligible projects that meet all application criteria will be assessed based on the following evaluation criteria and scoring system:

All projects will be graded on a scale of 100.

Innovation / Originality (35 Points):

Assessment of whether the proposed idea demonstrates an unconventional and original approach to problem-solving.

Problem-Solving (25 Points):

Evaluation of whether the proposed idea effectively addresses the identified problem and includes the necessary details for resolution.

Feasibility (30 Points):

Consideration of whether the architectural and structural design clearly outlines the necessary steps for technical implementation.

Social Impact (10 Points):

Assessment of whether the idea introduces a unique perspective that can lead to direct or indirect changes in people's behavior.

11. Awards:

Following the evaluation of the projects eligible for participation, the most outstanding project team will be awarded a prize of 60,000 TL. Additionally, two projects selected by the jury among the submitted and evaluated entries will each receive a special jury award of 20,000 TL. Apart from the awarded projects, all participating teams will receive a participation fee of 1,500 TL.

If the rightful recipients fail to provide their personal bank account/IBAN details and any required documents or information requested by the organizing institution, the award payment will expire one (1) year from the announcement of the results. In the event of expiration, the recipient forfeits any rights to claim the award, copyright fees, or any other related entitlements. The model of the most outstanding project will be manufactured at a 1/5 scale by Istanbul Aydın University (İAÜ) and exhibited in a designated area within the university.

12. Exhibition, Publication, and Colloquium of Projects:

- All submitted and evaluated projects will be included in the competition exhibition.
- If a competition booklet is prepared, all projects that comply with the competition rules will be included in the publication.
- The format and date of the competition exhibition will be announced along with the official results, depending on the circumstances.

13. Rules and Obligations for Participants:

Projects will be disqualified from the competition **by jury decision** and recorded in an official report under the following circumstances:

- Failure to comply with the “Participation Requirements” stated in the competition regulations.
- Presence of any identifying marks on the project or model that reveal the project owner’s identity, and/or missing identity documents or incomplete identity information.
- Submission of the project after the specified date and time stated in the competition guidelines.
- Failure to provide complete identity information and required documents during the pre-registration process.
- Each project must be original, unpublished, and must not have won an award in any previous competition. If a violation of this rule is identified and confirmed by a majority of the jury members, the project will be disqualified. If the project has already been awarded, the entire award amount must be returned to the competition organizers.
- A participant may only receive one award. If a participant is part of multiple teams and wins more than one award, the second award will be considered invalid.
- First-degree relatives of jury members are not allowed to participate in the competition.
- AI-generated projects will not be accepted.

14. Participant Declaration:

By participating in the "*Lunar Habitat Student Concept Design Competition*," I/we acknowledge that I/we have been informed about all aspects of the competition. I/we confirm that I/we have read and understood the competition guidelines and fully accept all rights and responsibilities associated with the competition process. Furthermore, I/we agree to comply with these rules and regulations. I/we acknowledge that Istanbul Aydın University (İAÜ) has the authority to disqualify me/us from any stage of the competition should any violation occur, and in such a case, I/we will not make any financial or moral claims against İAÜ.

Additionally, I/we grant permission for the competition-related advertisements, promotions, award ceremonies, meetings, interviews, and all audio and visual recordings to be published. I/we consent to the use of photographs, images, and video recordings taken during the event by İAÜ for promotional purposes across all print and visual media platforms, including social media (Facebook, Twitter, LinkedIn, etc.), television, radio, press, outdoor billboards, printed promotional materials, posters, brochures, catalogs, and online broadcasts. Furthermore, I/we authorize the use of my/our name(s), interviews, images, videos, and photographs for the aforementioned promotional and media purposes.

15. Intellectual Property Rights

All intellectual property rights related to the projects belong to their respective creators, in accordance with the provisions of Law No. 5846. However, by participating in the competition, entrants grant permission for their projects to be physically and/or digitally exhibited and published by Istanbul Aydın University (İAÜ) after the competition results have been announced.

The creator (participant) declares, accepts, and guarantees that the submitted project is their own original work, that no third parties hold any rights over it, that they have not previously transferred any rights related to the project, and that they will be legally responsible in the event of any claims from third parties.

Submission to the Istanbul Aydın University "Lunar Habitat Student Design Competition" Office

I hereby declare that I have applied to the Lunar Habitat Student Design Competition, organized by Istanbul Aydın University, on [Date] via the <http://ayda-yasam-alani-yarismasi.aydin.edu.tr> Competitor Application Form. I affirm that throughout the project development and evaluation processes, I have adhered to all the statements and commitments made in my participant declaration. I acknowledge that if a violation is identified, any rights or awards obtained as a result of the competition may be revoked. Furthermore, I confirm that all statements mentioned in the declaration shall remain indefinitely valid and binding for the entire project team, without any time limitations.

Team Representative:

Full Name:

Signature:

16. Competition Contact Information:

Official Announcement Address: <https://ayda-yasam-alani-yarismasi.aydin.edu.tr>

Email: ayda-yasam-alani-yarismasi@aydin.edu.tr