



# Sustainable KTU

## SUSTAINABILITY REPORT 2024

**9** INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



[www.ktu.edu.tr/sustainability](http://www.ktu.edu.tr/sustainability)



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Sustainable development is not only a global vision, but also a shared responsibility that our country bears towards future generations. In this sense, the Sustainable Development Goals (SDGs) set by the United Nations, Turkey's 11th and 12th Development Plans, the Green Deal Action Plan, and the Higher Education Council's sustainability vision form a roadmap for higher education institutions.

As Karadeniz Technical University, we consider it our primary duty to contribute to these goals in line with our mission of education, research, and community service. Our university produces science-based knowledge, develops policies, and implements projects in interaction with the community across a wide range of areas, from quality education to climate action, from poverty reduction to the construction of innovative and sustainable cities.

In line with our country's national policies, our university leads regional development and assumes global responsibility through international collaborations, while also aiming to educate our students to become conscious individuals for a sustainable future. The report prepared in this context reflects not only the activities carried out but also our university's determination on its sustainability journey.

Our belief in the future is strengthened by the guidance of science and the dynamism of our youth. Karadeniz Technical University will continue to contribute to sustainable development goals and support our country's vision in this area.

Prof. Dr. Hamdullah ÇUVALCI  
**Rector, Karadeniz Technical University**



## 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Sustainable Development Goal 9 (SDG-9): Industry, Innovation, and Infrastructure aims to establish resilient infrastructures, support sustainable industrialization, and promote innovation—key components of economic growth, technological transformation, and societal well-being. This goal encompasses multi-dimensional objectives, particularly in developing countries, including enhancing technological capacity, strengthening local production, and expanding research and development activities.

Karadeniz Technical University (KTU) has developed multi-faceted strategies centered on sustainable industrialization and innovation. Through its research centers, the Technology Transfer Application and Research Center (KTU TTM), and Trabzon Teknopark, the university has established collaborations with industry, contributing to the commercialization of academic knowledge, increasing regional production capacity, and disseminating innovative solutions. Simultaneously, numerous initiatives have been implemented to institutionalize a culture of innovation, including patent applications, utility model projects, student entrepreneurship support programs, and project competitions. Applied laboratories and mentorship systems have been established where students can develop both technical and entrepreneurial skills in the process of turning ideas into products. Additionally, KTU aims to enhance the innovation capacity of the local and national economy through engineering, design, and production projects that directly support regional industry.

This report examines KTU's strategies, initiatives, and collaborations throughout 2024 in line with SDG-9, highlighting how the university contributes to a sustainable industrial ecosystem and facilitating the dissemination of best practices. In this regard, the university functions not only as a knowledge-producing institution but also as a pioneer of technological advancement and a key driver of regional development.



## Institutional Structure

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Karadeniz Technical University (KTU) contributes to sustainable development at regional, national, and international levels through its strong academic capacity and institutional structure, in line with the Sustainable Development Goal 9 (SDG-9) on Industry, Innovation, and Infrastructure. Within the university, various units support research and development processes, leading the transformation of scientific knowledge into social and economic benefits.

The Technology Transfer Application and Research Center (TTM) plays a strategic role in developing the entrepreneurship and innovation ecosystem. The center facilitates the commercialization of academic knowledge, manages patent processes, and ensures the sustainable organization of knowledge flow between industry and the university.

The BAP Coordination Unit, established to fund research activities and incentivize researchers, contributes to the effective utilization of research infrastructure through its support for innovative projects, while also strengthening scientific production in nationally and internationally prioritized areas.

The Application and Research Centers (UYGAR), with their multidisciplinary structures, conduct a wide range of research, mediating the translation of academic work into societal benefits and generating R&D solutions needed by both public and private sectors.

Additionally, Trabzon Teknopark, another key component of KTU's innovation ecosystem, supports the development of entrepreneurs, start-ups, and technology firms, transforming the university's knowledge base into economic value.





## Technology Transfer Application and Research Center (TTM)

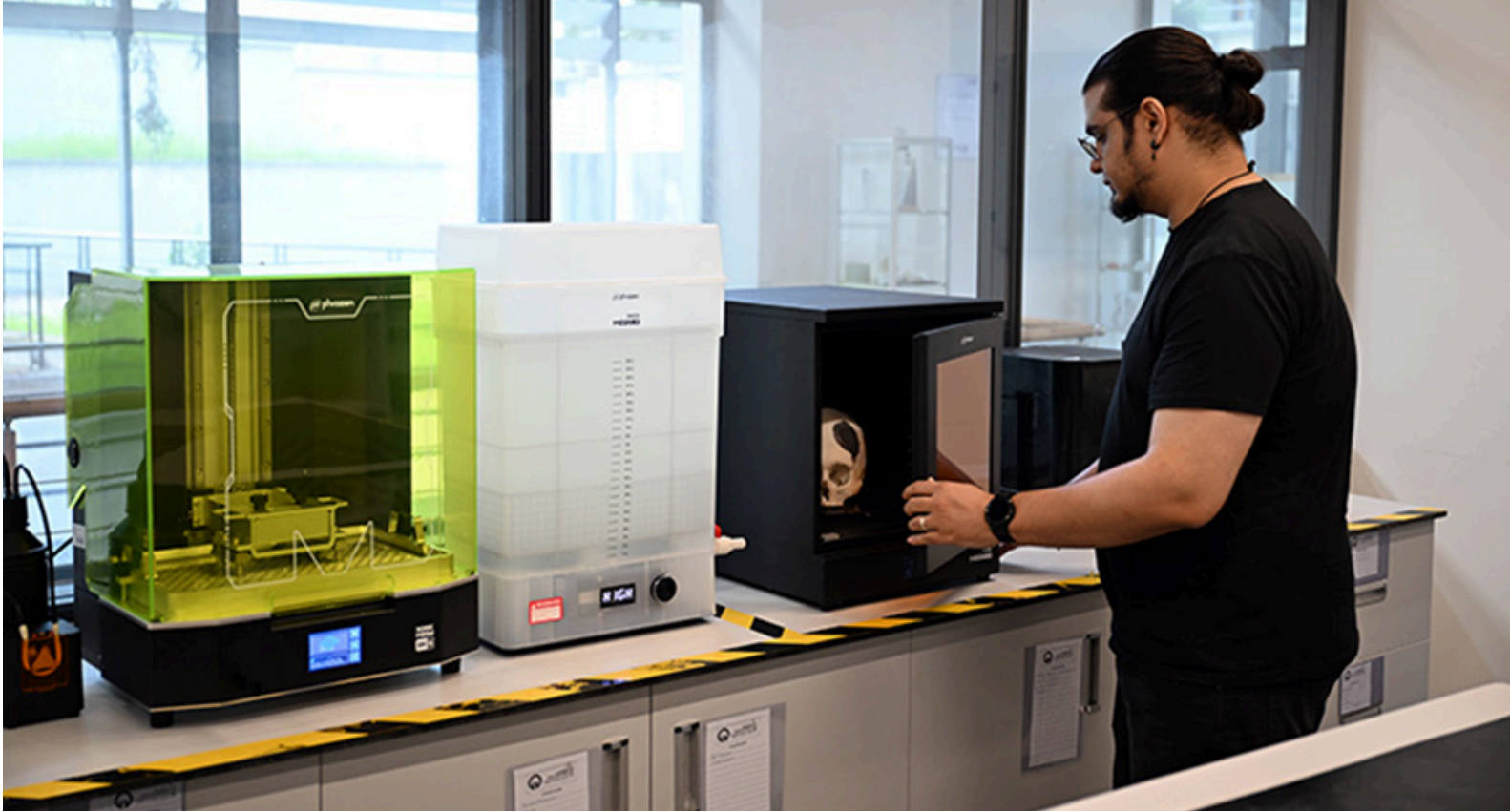
The Technology Transfer Application and Research Center (TTM) at Karadeniz Technical University (KTU) is an institutional structure established by the Senate decision dated December 26, 2012, aimed at systematically strengthening KTU's university-industry collaboration capacity. TTM's mission includes supporting researchers in project preparation processes, managing the registration, licensing, and commercialization of intellectual and industrial property rights, fostering an entrepreneurial culture, and providing infrastructure for innovative collaborations.

The center provides R&D infrastructure to the region through university-industry joint projects, entrepreneurship and spin-off support, project funding consultancy, intellectual property management, and national/international networking activities. TTM's portfolio includes 261 publicly funded university-industry collaboration projects, 36 international projects, 63 registered technologies, and 46 established companies. Additionally, through initiatives such as "TTM Academy," e-newsletters, and sector-specific training programs, TTM actively engages academics and students in the project ecosystem.



[KTU Technology Transfer Application and Research Center \(TTM\)](#)

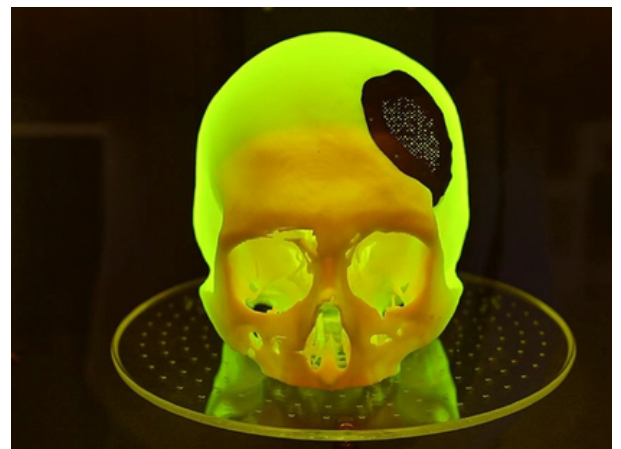




## KTU Application and Research Centers

The Application and Research Centers operating within Karadeniz Technical University (KTU) are strategic units that support the university's research-focused vision and directly contribute to SKA-9 objectives related to infrastructure, innovation, and industry collaboration. In total, 17 UYGARs operate with expertise in different fields; some conduct advanced R&D projects, while others provide sectoral services and coordinate public-private partnerships. In 2024, the number of priority sector projects and community-oriented outputs carried out through UYGARs exceeded targets, providing significant qualitative contributions to the university's research capacity.

These centers are positioned not only as hubs for academic output but also as structures that strengthen university-industry-society collaboration. They are regularly monitored through institutional performance indicators and are directly aligned with strategic plan targets. As a result, KTU's UYGARs play a critical role in the processes of scientific knowledge production, technology development, and creation of sectoral solutions, providing tangible contributions to the applied and sustainable infrastructure dimension of SDG 9.



[KTU Application Research Centers](#)





## Technology Competitions Coordination

The Technology Competitions Coordination Unit at KTU is a strategic structure supporting SDG9 – Industry, Innovation, and Infrastructure. Operating under the official directive enacted by the Senate on June 11, 2024, this unit is designed to encourage university students and student clubs to participate in national and international technology competitions, support project development, and strengthen practical skills.



[Technology Competitions Coordination Directive](#)





# Trabzon Technopark Technology Development Zone

Trabzon Technopark, jointly managed with KTU (Trabzon Technology Development Zone), stands out as a strategic entity contributing at the institutional level to SDG9 – Industry, Innovation, and Infrastructure. Established by the Council of Ministers' decree published in the Official Gazette in 2004 and becoming fully operational in 2008, Trabzon Technopark has been structured as the region's technology hub through a partnership among KTU, the Trabzon Chamber of Commerce and Industry, the Eastern Black Sea Exporters' Association, the Municipality, and private sector stakeholders.

The Technopark provides entrepreneurial companies operating within the zone the opportunity to conduct R&D projects and supports the digital transformation ecosystem by offering infrastructure, training, consultancy, and support services. Activities span various sectors, including software, hardware, machinery, energy, biotechnology, defense industry, and manufacturing.



**Trabzon TEKNOKENT**  
**İleri Teknoloji, Yaratıcılık ve İnovasyonun**  
**Buluşma Noktası**

Trabzon'un Yükselen Teknoloji Markaları Teknokent Çatısı  
Altında AR-GE Faaliyetlerini Sürdürürken  
Ayrıcalıklardan Yararlanıyor



[Trabzon Technopark](#)

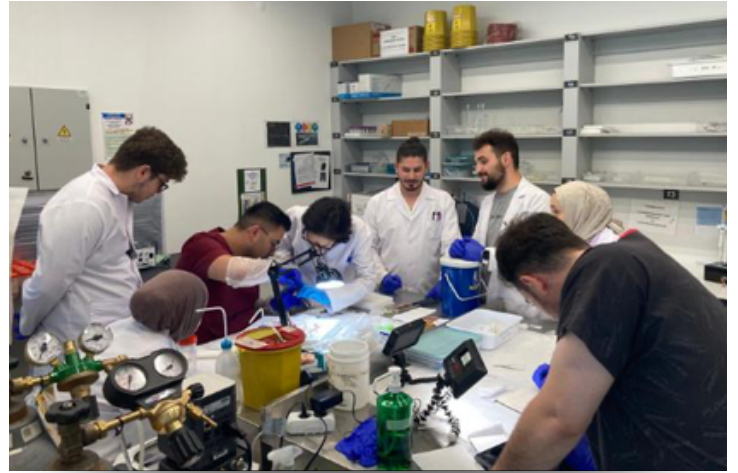
[Trabzon Technopark Companies](#)





## KTU Central Research Laboratory in Industry Collaboration

Within the 2024–2028 Strategic Plan, KTU has set numerous concrete goals and activities aligned with SDG 9, focusing on industry, innovation, and infrastructure. The plan, which aims to strengthen the university’s research-oriented structure, prioritizes strategies such as expanding R&D infrastructure, enhancing the effectiveness of application and research centers, and reinforcing public-university-industry collaborations.



Developments such as the commissioning of the Central Research Laboratory and the attainment of quality certification for UYGAR centers have enhanced the university’s technical infrastructure capacity to serve industry. Additionally, with reference to policy objectives from the 12th Development Plan and the Medium-Term Program, strategies such as promoting graduate programs that engage with industry in priority sectors, R&D activities focused on commercialization, and innovative product development processes have been incorporated into the university agenda. These strategies aim to create an innovative university ecosystem that supports sustainable industrialization and leverages digital transformation and advanced technologies, reflecting KTU’s development objectives in strong alignment with SDG 9.



[KTU Central Research Laboratory](#)





## Innovation and Infrastructure Protocols on the University-Industry-Society Axis

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In 2024, Karadeniz Technical University (KTU) took concrete steps contributing to SDG 9 – Industry, Innovation, and Infrastructure through an R&D collaboration protocol signed with FARMATEKS İlaç Kimya San. ve Tic. Ltd. Şti. The protocol aims to develop high value-added products in the fields of phytotherapy and aromatherapy, involve students in R&D processes, and enable academic staff to provide technical consultancy to the industry.

In the same year, KTU initiated a multifaceted education, research, and technical infrastructure program through a collaboration protocol signed with the Republic of Turkey Ministry of Transport and Infrastructure, contributing directly to SDG 9. Within the scope of the protocol, the Sürmene Faculty of Marine Sciences develops bridge simulation models, fuel consumption optimization studies, and maritime accident modeling; a virtual/augmented reality-supported training infrastructure is established, and multiple certification, ECDIS, cybersecurity, and technical training programs are delivered to ministry personnel.

The 2024 collaboration protocol between KTU Araklı Ali Cevat Özyurt Vocational School and the Trabzon Arsin Organized Industrial Zone represents a comprehensive model directly supporting SDG 9 – Industry, Innovation, and Infrastructure. The protocol provides internship opportunities for students and employment opportunities for graduates, enhances vocational school infrastructure, and establishes new departments. Additionally, training and seminars are offered to industrial employees, academic consultancy is provided for R&D projects, and a sustainable cooperation framework is established between the parties.



# University-Industry-Society Axis Projects

The Future Skills Academy Project is a strategic university-industry collaboration carried out jointly by Karadeniz Technical University (KTU) and the Trabzon Chamber of Commerce and Industry, supported by the EU and the Republic of Turkey. The project aims to strengthen the region's digital transformation capacity and develop qualified human resources. During 2024, the project implemented training programs in priority digital technologies for industry, including AR, VR, additive manufacturing, and design, organized awareness-raising activities, and established a sustainable educational infrastructure. By aligning the region's industrial infrastructure with the digital era, the project has directly contributed to the development of a skilled workforce and the objectives of sustainable industrialization.



The project also involved participation from other key regional institutions, including Trabzon University, the Eastern Black Sea Development Agency (DOKA), the Trabzon Union of Tradesmen and Craftsmen Chambers, the Eastern Black Sea Exporters' Association, the Trabzon Commodity Exchange, the Union of Chambers of Turkish Engineers and Architects (TMMOB) Environmental Engineers Chamber, Electrical Engineers Chamber, Civil Engineers Chamber, Chemical Engineers Chamber, Mechanical Engineers Chamber, Architects Chamber, and Trabzon Vocational and Technical Anatolian High School.

In 2024, Karadeniz Technical University (KTU) conducted the project titled "Investigation of the Glycemic Effect of Aronia Berries Grown in Akçaabat in an in vivo Diabetes Model," aiming to transform regional agricultural resources into innovative health solutions. Implemented in collaboration with KTU İLAFAR, Akçaabat Municipality, and AKÇABEL A.Ş., the study scientifically evaluated the potential of the local Aronia variety against diabetic effects and laid the groundwork for transferring the findings to the health industry through product development. This collaboration, which made effective use of the university's laboratory infrastructure, presents an integrated R&D model between agriculture, industry, and academia and contributes to sustainable regional development goals.



[FSA Project](#)





## Contributions of Student Clubs

Throughout 2024, Karadeniz Technical University (KTU) reinforced its industry, innovation, and infrastructure activities in line with SDG 9 through notable student-led achievements. Within this framework, the KTU Space Club won the “Best Presentation Award” in the Industrial Digital Technologies Competition organized under TEKNOFEST 2024. This accomplishment showcased the university’s vision for innovative solutions integrated with industry and digital transformation. The students’ proficiency in developing industry-oriented digital technologies demonstrates that KTU’s research infrastructure and hands-on educational strategies are progressing in alignment with SDG 9 objectives.

Additionally, KTU successfully continued its technology and industry-focused innovation initiatives in 2024. Student teams, including the Hangar Team, Creatiny Surface Team, Creatiny Hyperloop Team, and Trabzon Energy Technologies Community, achieved multiple national championships and runner-up positions in various categories at TEKNOFEST 2024 competitions. These successes contributed concretely to KTU’s digital technology production capacity and industry collaboration goals. They also indicate that the university’s research and applied infrastructure is being strengthened, and its strategic steps toward domestic and national technology production advanced successfully in 2024, fully supporting SDG 9 targets.



# Industry, Innovation and Infrastructure-Based Information KTU TV Programs

In line with SDG 9 – Industry, Innovation, and Infrastructure, Karadeniz Technical University (KTU) has produced numerous high-quality broadcasts via KTU TV to enhance knowledge and experience sharing. These broadcasts brought together academics, industry representatives, and students on topics such as university-industry collaborations, innovative research projects, the entrepreneurship ecosystem, sustainable technology applications, and infrastructure development processes. In doing so, KTU not only ensured that academic knowledge reached a wider audience but also raised awareness at both regional and national levels, directly contributing to the achievement of SDG 9 targets.

**KTÜ** BİLGİLENDİRİYOR

**İNŞAAT MÜHENDİSLİĞİNDE YAPAY ZEKA UYGULAMALARI**

Doç. Dr. Hasan Tahsin ÖZTÜRK  
KTÜ Of Teknoloji Fakültesi

14 Ekim | KTÜ Radyo/TV  
11:00 Canlı Yayın

Radyo KTÜ 101.7 • ktuedu.tr/radyoktu • www.youtube.com/ktutv

**KARADENİZ TEKNİK ÜNİVERSİTESİ**  
Kurumsal Belgeyi Koordinatörlüğü  
KTÜ Radyo TV

**KUTUPLARDA BİLİM**

DOÇ. DR. MURAT ÖZKAPTAN  
KTÜ İZMİR MÜHENDİSLİĞİ BÖLÜMÜ  
TİM FİJİO ANKARA'DA DANIŞMAN  
İZMİR MÜHENDİSLİĞİ BÖLÜM BAŞKAN YARDIMCI

PROF. DR. ERSAN BAŞAR  
SÜRME DENEY BİRLEŞİMİ FAKÜLTESİ  
DENEY İZMİR MÜHENDİSLİĞİ BÖLÜMÜ  
SEM (SEMEN ANKARA) DANIŞMAN

22 Nisan 2024  
KTÜ TV  
CANLI YAYIN  
www.youtube.com/ktutv

**KTÜ** TV

**AKADEMİKA**  
Yapay Zekâ ile Geleceğe Bakış

Prof. Dr. Vasif NABİYEV  
KTÜ Yapay Zekâ ve Veri Mühendisliği Bölümü  
Bölüm Başkanı

27 Kasım 2024  
KTÜ RADYO/TV CANLI YAYIN  
KTÜ Radyo 101.7 - ktuedu.tr/radyoktu - www.youtube.com/ktutv

**KTÜ** TV

**AKADEMİKA**  
Endüstriyel Matematik

Prof. Dr. Erhan ÇOŞKUN  
KTÜ Fen Fakültesi Matematik Bölümü  
Bölüm Başkanı

14 Kasım 2024  
KTÜ RADYO/TV CANLI YAYIN

**KTÜ** TV

**AKADEMİKA**  
DEPREM VE YAPI SAĞLIĞI

Doç. Dr. Hasan Basri BAŞAĞA  
KTÜ Mühendislik Fakültesi  
İnşaat Mühendisliği Bölümü

13 Kasım 2024  
KTÜ RADYO/TV CANLI YAYIN  
KTÜ Radyo 101.7 - ktuedu.tr/radyoktu - www.youtube.com/ktutv

**KTÜ** TV

**AKADEMİKA**  
Yazılım Geliştirme Bölümü

Dr. Öğr. Üyesi Erçüment YILMAZ  
KTÜ Fen Fakültesi Yazılım Geliştirme Bölümü  
Bölüm Başkanı Yardımcısı

24 Ekim 2024  
KTÜ RADYO/TV CANLI YAYIN  
KTÜ Radyo 101.7 - ktuedu.tr/radyoktu - www.youtube.com/ktutv



# Industry, Innovation and Infrastructure-Based Information KTU TV Programs

**KTÜ** **BİLİM TRABZON**

**TRABZON ÖZDEMİR BAYRAKTAR PLANETARYUM VE BİLİM MERKEZİ FAALİYETLERİ**

**ÖZGÜR KARA**  
Trabzon Büyükşehir Belediyesi Gençlik ve Spor Hizmetleri Dairesi Başkanı

28 Şubat 2024  
**KTÜ TV CANLI YAYIN**  
[www.youtube.com/ktutv](http://www.youtube.com/ktutv)

**KTÜ TV** **AKADEMİKA**

Harita Mühendisliği Uygulamalarının Meteorolojik Tahminlere Katkı Potansiyeli

**Prof. Dr. EMİNE TANIR KAYIKÇI**  
Harita Mühendisliği Bölümü Jeodezi Anabilim Dalı

16 Ekim 2024  
**KTÜ RADYO/TV CANLI YAYIN**  
KTÜ Radyo 101.7 - [ktu.edu.tr/radyoktu](http://ktu.edu.tr/radyoktu) - [www.youtube.com/ktutv](http://www.youtube.com/ktutv)

**KTÜ TV** **AKADEMİKA**

UYGULAMALI FİZİK ve İLGİLİ TEKNOLOJİLER

**Prof. Dr. Ufuk Kemal ÖZTÜRK**  
KTÜ Fen Fakültesi Fizik Bölümü Katihal Fizik Anabilim Dalı

10 Ekim 2024  
11.00  
**KTÜ RADYO/TV CANLI YAYIN**  
KTÜ Radyo 101.7 - [ktu.edu.tr/radyoktu](http://ktu.edu.tr/radyoktu) - [www.youtube.com/ktutv](http://www.youtube.com/ktutv)

**KTÜ TV** **Uzay Kulübü**

**Muhammed Enes KONDU**  
Elektrik Elektronik Mühendisliği

**Eray KAHYA**  
Elektrik Elektronik Mühendisliği

**Tolga Yiğit DUMAN**  
Makine Mühendisliği

14 Kasım 2024  
14.00  
**KTÜ Radyo/TV | CANLI YAYIN**  
Radyo KTÜ 101.7 • [ktu.edu.tr/radyoktu](http://ktu.edu.tr/radyoktu) • [www.youtube.com/ktutv](http://www.youtube.com/ktutv)

**KTÜ** **MADENCİLİK VE ALTIN MADENCİLİĞİ**

**PROF. DR. İBRAHİM ALP**  
KTÜ MÜHENDİSLİK FAKÜLTESİ MADEN MÜHENDİSLİĞİ BÖLÜMÜ

30 Ocak 2024  
11.00  
**KTÜ TV CANLI YAYIN**  
[www.youtube.com/ktutv](http://www.youtube.com/ktutv)





## Academic Contributions

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In 2024, Karadeniz Technical University (KTU) demonstrated strong performance in research, innovation, and entrepreneurship activities within the scope of SDG9. Within the university, 249 new projects were launched under the BAP program, and together with 373 ongoing projects carried over from previous years, the total number of active projects reached 622. Over the year, 63 new projects were initiated under TÜBİTAK, with 47 projects completed. Additionally, in the context of European Union projects, 9 new projects were launched, 2 completed, and 15 continued. Furthermore, 7 new TÜSEB projects were put into operation.

Significant progress was made in the commercialization of the university's research outputs to generate added value. In 2024, a total of 72 national, 20 international, 13 design, and 2 utility model applications were submitted; from these, 10 national and 2 international patents, 6 utility models, and 11 design registrations were granted. These results demonstrate KTUs ability to transform its innovative potential into tangible outcomes.

In terms of contribution to the entrepreneurship ecosystem, KTU academics served as founders or partners in 46 companies established within Trabzon Teknopark, highlighting the university's active role in converting knowledge and technology into economic value.





## Academic Contributions

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According to the Scopus database, the number of scientific publications related to this development goal increased from 45 in 2023 to 57 in 2024. Purpose-driven scientific projects at both undergraduate and graduate levels are also actively ongoing. In the AVESIS database, 19 conference papers are among the publications contributing to this field.

According to THE Impact Ranking data, in the goal of Industry, Innovation, and Infrastructure, KTU scored 66 in the 2025 results (based on 2024 data), placing it in the 301–400 band. Furthermore, THE Impact Ranking 2025 indicates that KTU's scientific outputs for 2025 (using 2024 data) in SDG-9 – Industry, Innovation, and Infrastructure received an indicator score of 67.4.

In addition to these achievements, in 2024, KTU concretized its strategic vision for SDG9 with innovative inventions showcased at the TEKNOFEST ISIF'24 International Invention Fair. Participating with 10 inventions developed by university academics in collaboration with the technopark, KTU received the “Grand Prix” award along with multiple gold and silver medals, demonstrating its industry-focused research infrastructure, patent production, and technology transfer capacity. These awards also highlight KTU's effective role in intellectual property generation and commercialization.



[Academic Publications-2024](#)





# Sustainable KTU

This publication has been prepared by KTU Office of  
Research Coordination