FACULTY OF ENGINEERING AND ARCHITECTURE

BULLETIN

● MARCH 2025 ●

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FACULTY OF ENGINEERING AND ARCHITECTURE

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NEWS FROM THE FACULTY

INDUSTRIAL ENGINEERING

Didem Yılmaz, who has been working as an Assistant Professor in the Department of Industrial Engineering, has been appointed as the Department Acting Head of the Department of Industrial Engineering as of March 20, 2025.
We congratulate and wish her success in her new position.

Emre Süyün, a master's student at the Graduate School of Engineering Management at Istanbul Gelişim University (IGU), successfully defended his thesis titled "Forecasting the Optimal Demands of Products in a Food Company." Asst. Prof. Dr. Didem Yılmaz served as the thesis advisor, while Asst. Prof. Dr Seda Erbayrak and Assoc. Prof. Dr. Yıldız Şahin served as jury members.
At the end of the defense, Emre Süyün was deemed successful by the jury and has successfully completed his master's education.

Ahmetcan Hoşcan, a master's student at the Graduate School of Engineering Management at Istanbul Gelişim University (IGU), successfully defended his thesis titled "Implementation of Accessory Stock Management in a Textile Company."Asst. Prof. Dr. Didem Yılmaz served as the thesis advisor, while Asst. Prof. Dr. Binnur Gürül and Assoc. Prof. Dr. Umut Hulusi İnan served as jury members.At the end of the defense, Ahmetcan Hoşcan was deemed successful by the jury and has successfully completed his master's education.

NEWS FROM THE FACULTY

● CIVIL ENGINEERING ●

ASST. PROF. DR. İBRAHIM RASIN DÜZCEER ATTENDED THE EFFC COUNCIL MEETING

Asst. Prof. Dr. İbrahim Rasin DÜZCEER, a faculty member of the Civil Engineering Department, participated in the EFFC (European Federation of Foundation Contractors) Council Meeting held in Prague on March 6–7, 2025.

The meeting brought together presidents and technical committee representatives from Türkiye, the United Kingdom, Germany, France, Italy, Austria, Poland, the Czech Republic, Sweden, the Netherlands, and Belgium. The participants discussed the current activities and challenges faced by member countries. Chairs of the Contract, Technical, Sustainability, and Health & Safety Working Groups presented updates on their respective focus areas. Several key publications were introduced, including the "Guideline for the Assessment of Integrity of Deep Foundations by Non-Destructive Testing", the second edition of the "Working Platform Guideline" and "Support Fluids Guideline", and the upcoming third edition of the "Tremie Concrete Guideline". Discussions were also held on the use of artificial intelligence in the geotechnical field and strategies for encouraging young geotechnical engineers to join the sector. A comprehensive presentation was delivered on the national and international activities of TMD (Turkish Association of Foundation Contractors), current projects in Türkiye, and the contributions of Turkish professionals to the geotechnical engineering field. Information was shared regarding the upcoming international conference titled "Geotechnical Engineering Redefined: New Frontiers in Ground Engineering", to be held in Bruges, Belgium, on May 21–23, 2025, in collaboration with DFI-EFFC. It was also noted that early registration ends on March 21. We extend our sincere thanks to EFFC President Fabrizio Leoni and ADSZS President Jindřich Řicica, the host of the event. We also congratulate Asst. Prof. Dr. İbrahim Rasin DÜZCEER for his valuable participation in this significant international gathering.

NEWS FROM THE FACULTY

● CIVIL ENGINEERING ●

GELIŞIM CIVIL ENGINEERING DEPARTMENT RANKS AT THE TOP IN SCIMAGO 2025!

According to the SCImago University Rankings 2025, Istanbul Gelisim University (IGU) ranked 1st among foundation universities and 11th nationwide in Civil and Structural Engineering, achieving a significant success. The results of the "SCImago University Rankings 2025," which evaluates the scientific research capacity, innovation performance, and social impact of universities worldwide, have been announced. Based on Scopus and SciVal data, Istanbul Gelisim University (IGU) achieved a remarkable success by ranking 6th among foundation (private) universities in the overall category and 4th in the research category. The Department of Civil Engineering at Istanbul Gelisim University has secured the 1st place among foundation universities and 11th place nationwide in the "Civil and Structural Engineering" category, thanks to its strong academic staff, interdisciplinary approach, and project-based education model. This result stands as a testament to the department's scientific productivity and its contributions to the engineering sector, gaining recognition on an international level. As the Department of Civil Engineering, we believe that engineering education must be strengthened not only through theoretical knowledge but also with practical experience, research activities, and community-oriented projects. Our comprehensive approach to education is clearly reflected in the SCImago rankings, which further motivates us to continue striving for excellence. Focusing on contemporary engineering topics such as sustainable structures, infrastructure planning, digital transformation, and smart cities, our department continues to make a difference both nationally and globally through international collaborations, scientific publications, and ongoing projects. At Istanbul Gelisim University's Civil Engineering Department, we see this success as just the beginning and remain committed to educating the visionary engineers of the future.

NEWS FROM THE FACULTY

● MECHATRONICS ENGINEERING ●

On 19.03.2025, Mr. Ahmet Şenol Armağan, Head of the Library and Documentation Department of Istanbul Gelisim University, attended Mechatronics Engineering Department Dr. Assist. Prof. Dr. Cansu Noberi's Product Development Methodology course. The educational and complementary seminar was highly appreciated by the students.

On 18.03.2025, a Compulsory Summer Internship Information Meeting was held for the students of the Department of Mechatronics Engineering. At the meeting, Assoc. Assist. Tunay Acıman and Assist. Assist. Ufuk Ateşoğlu shared detailed information about the internship process and answered student questions.

Mechatronics Engineering faculty member Dr. Assoc. Dr. Haydar Kepekçi, co-supervised by Yıldız Technical University, Department of Naval Architecture and Marine Engineering, successfully completed his thesis titled "Numerical Investigation of a Sample Ship in Layered Flow Consisting of Sand-like High Viscosity and Density Material and Water in terms of Resistance" and graduated.

NEWS FROM THE FACULTY

ARCHITECTURE

ASSOC. PROF. DR. İLKE CIRITCI TOOK PART IN THE TMMOB CHAMBER OF ARCHITECTS 'DRAFT REGULATION ON ARCHITECTURAL SERVICES' REGIONAL WORKSHOP.

IGU Department of Architecture lecturer, Assoc. Prof. İlke CİRİTCİ participated in the Marmara Regional Workshop hosted by Istanbul Metropolitan Branch on 01.03.2025. Suggestions were developed with a collective work within the framework of 4 tables regarding the Draft Regulation on Architectural Services, Assoc. Prof. İlke CİRİTCİ contributed to the workshop at the table number 3 Academicians and services requiring expertise. The workshop, which was completed with original suggestions and results that will contribute to the professional field of Architecture, is aimed to shed light on the ongoing regulation studies. We would like to thank TMMOB Chamber of Architects, Istanbul Metropolitan Branch for hosting the workshop.

IMPORTANT STEP FOR "CLIMATE RESILIENT CITIES" FROM THE DEPARTMENT OF ARCHITECTURE

Our Department of Architecture has applied to the "Turkey Climate Change Grant Program" (EU-TR CCGP) prepared by the European Union and the Ministry of Environment of the Republic of Turkey with the research project titled "Innovative Solutions in Urban Water Management: Climate Resilient Cities with Rain Gardens, Permeable Surfaces and Participatory Approaches". The project was organized under the coordination of Dr. Naci ADALILARand is planned to be implemented with the contributions of our Department of Architecture and Dr. Ömer SAATCIOĞLU in partnership with Büyükçekmece Municipality and Istanbul Gelişim University. The main purpose of the project is to reduce flood risks by developing nature-based water management solutions at the local level within the scope of combating the effects of climate change, to support groundwater resources and to build conscious, climate resilient cities by ensuring public participation. Within the scope of the project, flood risk analyses and mapping will be conducted within the borders of Büyükçekmece Municipality and pilot applications will be carried out in these areas. In addition, symposiums, idea competitions with the participation of students and sector representatives, programs encouraging academic entrepreneurship and various educational activities are planned to be organized. All these activities, which aim to increase social awareness and develop a broad participation approach, will be carried out in cooperation with Istanbul Gelişim University.
https://www.ab.gov.tr/call-for-proposals-for-eu-turkiye-climate-change-grant-programme-eu-tr-ccgp-_53867_en.html

NEWS FROM THE FACULTY

ARCHITECTURE

In the courses ARC347 New Building Design in Historical Environment and MIM347 Tarihi Çevrede Yeni Yapı Tasarımı, which are opened in both the Turkish and English Departments of Architecture, the field of study this semester is FENER-BALAT. During the trip to the site on Saturday, March 15, 2025, students learned about historical texture analyses, spatial and structural components of historical structures and had the opportunity to experience Fener-Balat, a touristic and historical place, on site. As a result of the data obtained during the trip accompanied by Assoc. Prof. İlke Ciritci, each student will realize a balanced and respectful contemporary building design with the awareness of being in a historical area. It is aimed to organize an exhibition of the studies at the end of the semester and to send the selected projects to the competition opened in this field

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The topic of the Diploma Project for the spring semester of 2024 in the Department of Architecture was determined as urban renewal in Avcılar Ambarlı. Studio group advisor consists of Prof. Harun Batırbaygil (PhD), Assoc. Prof. Türkan Uzun (PhD), Assist. Prof. Semih G. Yıldırım (PhD) and Assist. Prof. Mahmoud Zin Alabadin (PhD). A field trip was organized in the afternoon of 24.02.2024 with the participation of all diploma project students.

FACULTY OF ENGINEERING AND ARCHITECTURE

ACTUEL TOPICS IN ENGINEERING AND ARCHITECTURE

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● COMPUTER ENGINEERING ●

THE AI COMPETITION ON PLATFORM X: GROK AI AND ITS ALTERNATIVES – RES. ASST. HASAN YILDIRIM

X, owned by Elon Musk, has made a groundbreaking advancement in artificial intelligence (AI) integration by incorporating Grok AI into its platform, thereby introducing the first officially integrated AI model in social media. Developed by Musk's xAI, Grok AI enables X users to generate real-time content, analyze news, and engage in dynamic conversations across diverse topics. Distinguished by its engaging and inquisitive nature, Grok AI sets itself apart from existing AI solutions. Positioned as a competitor to GPT-4, Grok AI leverages real-time data access to analyze current events and enhance user interaction within the platform. While Grok AI represents a significant milestone, other AI models such as ChatGPT and Gemini also attract attention. Though not directly integrated into X, these models are widely utilized by users for content creation. Grok AI's future implications hold critical importance for X's ambition to become an "all-in-one application." Potential applications include AI-powered news verification systems to detect misinformation, personalized content recommendations to improve user experience, and automated content generation to accelerate creative processes. Additionally, Grok AI could play a pivotal role in customer service and community management. The long-term impact of Grok AI on social media dynamics and X's competitive advantage in this evolving landscape will be shaped by its ability to innovate and adapt. As AI integration becomes central to platform strategies, X's success will depend on how effectively Grok AI addresses user needs while maintaining ethical and functional superiority over rivals.

INDUSTRIAL ENGINEERING AND SUSTAINABILITY: THE ROLE OF GREEN TECHNOLOGIES - RES. ASST. DUYGU TÜYLÜ

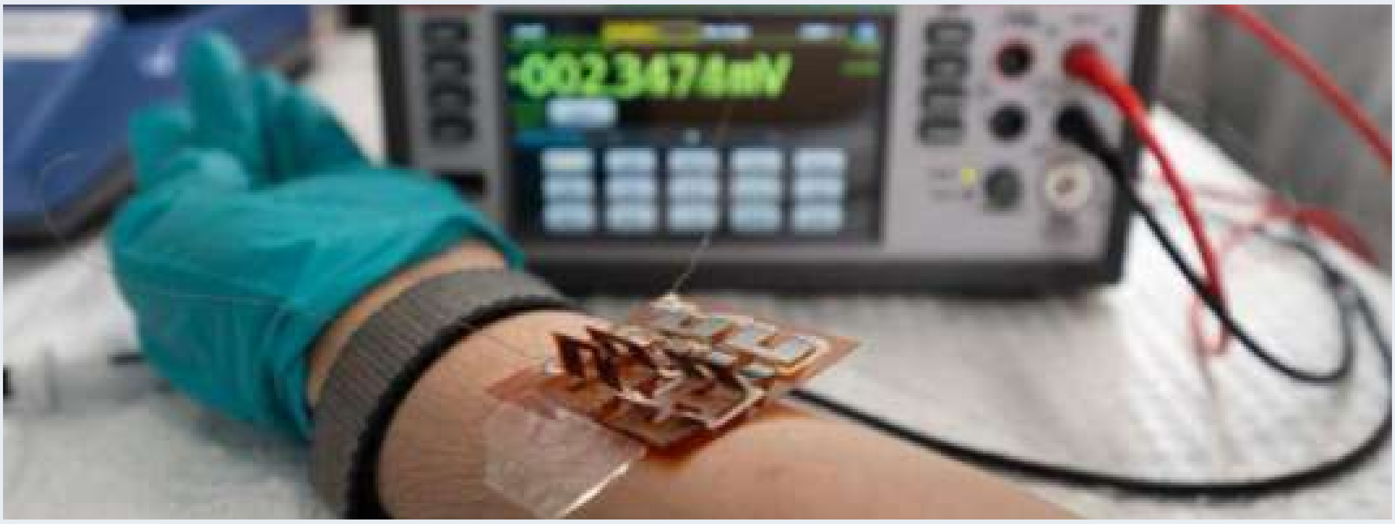
Industrial Engineering has been one of the leading drivers of technological advances and productivity increases. However, today, not only economic efficiency but also environmental sustainability is of great importance in this field. Environmental problems such as global warming, environmental pollution and depletion of natural resources have made it necessary to develop sustainable solutions in the field of Industrial Engineering. In this context, the use of environmentally friendly technologies, called "Green Technologies", will be one of the most important focal points of Industrial Engineering in the future.

INDUSTRIAL ENGINEERING

Green technologies provide environmental benefits such as less energy consumption, lower emission levels and the use of recyclable materials in production processes. Industrial engineers help companies both reduce their costs and reduce their impact on the environment by integrating these technologies into their business processes. At the same time, more efficient production with green technologies increases the competitiveness of brands and makes great contributions to the fight against global climate change.

One of the methods offered by Industrial Engineering to achieve sustainability goals is the circular economy model. This model helps minimize waste by ensuring that products are reusable and recyclable throughout their life. Industrial engineers are developing innovative solutions in areas such as supply chain management, process optimization and waste management to integrate this model into production processes. As a result, the relationship between Industrial Engineering and sustainability is becoming increasingly strong. Developing efficient and sustainable production methods, both environmentally and economically, has become one of the most important tasks of Industrial Engineering professionals. Innovative solutions in this area will contribute to the protection of both industrial processes and the environment in the future

WEARABLE TECHNOLOGY: COULD BODY HEAT BE THE NEXT BIG RENEWABLE ENERGY SOURCE? – RES. ASST. ELIF ÖZTÜRK



Using your body heat to power a watch or personal air conditioning system isn't as far-fetched as it sounds with this latest breakthrough in wearable technology. Body heat-powered devices are now closer to home with a new breakthrough in wearable technology.

You might not have thought that body heat could be a renewable energy source. But given the increasing popularity of electrically powered devices, the exponential increase in the need for batteries, and the pressure this puts on planetary resources, researchers have been testing this alternative for a while now.

It seems we all now have the potential to become a sustainable energy source for wearable electronics. But there are some challenges to commercializing this technology.

One of the challenges has been making these wearable devices flexible enough to fit around the human body. Researchers at the Queensland University of Technology (QUT) in Australia have overcome this problem by developing a new, ultra-thin, flexible layer that makes the devices comfortable and efficient.

● SOFTWARE ENGINEERING ●

CODING AI: A NEW ERA IN SOFTWARE ENGINEERING
– RES. ASST. ARŞ.GÖR.AYŞE ÇOBAN

Software engineering continues to evolve with each passing year, driven by rapidly advancing technologies. This transformation is not limited to the emergence of new programming languages or frameworks; it also fundamentally reshapes the nature of software development processes. One of the most striking developments in recent years has been the integration of artificial intelligence directly into the software production workflow. AI is no longer just a tool for data analysis or system management, it has become an active participant in writing code.

Tools like ChatGPT, GitHub Copilot, and TabNine are now embedded into the daily workflows of developers. These AI-powered assistants are not merely suggestion engines; they can generate new functions, debug code, and improve existing code structures. By doing so, they make the software development process faster, more efficient, and more accessible — while simultaneously redefining the traditional role of the software engineer.

Changing Roles in Software Engineering

One of the most concrete and visible impacts of artificial intelligence in software development is observed in AI-assisted coding practices. This approach integrates AI as an active collaborator into the traditionally individual-driven software production process. Developers are no longer just code writers; they have become collaboration-focused professionals who receive suggestions from AI, co-create code, and develop faster solutions to emerging problems.

A leading example of this transformation is GitHub Copilot, a powerful AI tool integrated into popular code editors like Visual Studio Code. Copilot, which can generate functional code blocks based on just a few lines written by the developer, is essentially an evolved version of traditional auto-complete systems. It goes beyond mere syntactical suggestions, offering meaningful and context-aware functions that align with the project's goals. As a result, repetitive tasks, common code patterns, and known algorithms can be generated quickly—saving developers time and significantly boosting productivity.

Similarly, ChatGPT, developed by OpenAI, can respond to programmers' natural language queries with detailed explanations and sample code. For example, when a user asks, "Can you quickly write a file comparison function in Python?", ChatGPT not only generates the function but also explains how it works, suggests alternative approaches, and even offers optimization tips if needed. This significantly facilitates the learning and problem-solving phases of the software development process.

FACULTY OF ENGINEERING AND ARCHITECTURE

ACADEMIC AND SCIENTIFIC ACTIVITIES

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ACADEMIC AND SCIENTIFIC ACTIVITIES

● COMPUTER ENGINEERING ●

The Computer Engineering Department of our university has appointed Hasan YILDIRIM, specializing in cyber-physical systems, as a Research Assistant. Having completed his first master's degree at our university and currently pursuing his second master's degree, YILDIRIM continues his research in cyber-physical systems under TÜBİTAK-funded projects. We congratulate him on the contributions he will make to the university’s scientific endeavors and extend our best wishes for success in his academic caree

● ELECTRICAL AND ELECTRONICS ENGINEERING ●

The article titled "Analytical Investigation of the Channel Characteristics in Graphene Nano Scroll Based Transistors" by our professor Dr. Banafsheh Alizadeh Arashloo has been accepted by the editorship of the International Journal of Engineering Technologies.

ACADEMIC AND SCIENTIFIC ACTIVITIES

● CIVIL ENGINEERING ●

An article titled "Mathematical Optimization of Monte Carlo Simulation Parameters for Stock Price Prediction" by Asst. Prof. Dr. Sajedeh Norozpour SIGAROODI, a faculty member of our department, has been published in the International Journal of Engineering Technologies. The study focuses on the use of the Monte Carlo simulation method for stock price prediction, which holds great significance for individual investors. By implementing the simulation step-by-step using Python and emphasizing parameter optimization, the research aims to improve model accuracy. Comparative analysis with other forecasting models reveals the strength of Monte Carlo simulation, particularly in evaluating financial risks and returns. The article also explores real-world applications such as portfolio optimization and retirement planning, highlighting the practical value of the method in complex financial decision-making processes. It offers valuable insights into probabilistic forecasting approaches for investors seeking effective tools for stock price prediction.

We congratulate Asst. Prof. Dr. Sajedeh Norozpour SIGAROODI on this valuable contribution and wish her continued success in her academic journey.

An article co-authored by Res. Asst. Şeyhmus Can TUNÇ, a research assistant in our department, titled "Post-earthquake condition of lifeline systems following the Kahramanmaraş" has been published in the journal Natural Disaster Research Report. The study focuses on the impact of the Kahramanmaraş-centered earthquakes that occurred on February 6, 2023, affecting 11 provinces in Türkiye. In particular, it examines the damage to lifeline systems, especially water infrastructures, in cities such as Gaziantep, Kahramanmaraş, Adıyaman, and Hatay. Data were collected through visits to local utilities (GASKİ, KASKİ, ASKİM, and HATSU), meetings with personnel, shared institutional data, and on-site observations. The article also evaluates the short- and long-term consequences of these damages on affected communities and provides valuable insights into the post-disaster conditions of critical infrastructure systems.

We congratulate Res. Asst. Şeyhmus Can TUNÇ on this significant contribution and wish him continued success in his academic journey.

ACADEMIC AND SCIENTIFIC ACTIVITIES

● MECHATRONICS ENGINEERING ●

One of the Research Assistants of the Mechatronics Engineering Department, Assist. Assist. Ufuk ATEŞOĞLU, his advisor Dr. Lecturer. The article titled “An Investigation on the Evaluation and Improvement of Existing Features of Foot Exercise Apparatus Designed for Use in Evertor and Invertor Muscle Dysfunction” authored by Serap YEŞİLKIR BAYDAR and Assoc. Prof. Dr. Osman Nuri ÖZYALVAÇ was published in Düzce University Journal of Science & Technology

● ARCHITECTURE ●

In March 2025, a publication by Asst. Prof. Dr. Oluwagbemiga Paul Agboola was co-authored by Asst Prof. Dr. Murat Arapoglu, entitled 'Energy-Efficient Urban Landscapes: Advancing the Built Environment through Sustainable Ecological Planning' was published by the International Journal of Engineering Technologies IJET. The publication is Volume 9; and Issue no 4; pages 109-122.
Access link: https://doi.org/10.19072/ijet.1593415

ACADEMIC AND SCIENTIFIC ACTIVITIES

● AERONAUTICAL ENGINEERING ●

Research Assistant Mustafa Cem Avcı and his advisor, Assoc. Prof. Dr. Fevzi Çakmak Bolat from Kocaeli University, have published a collaborative study derived from Avcı's master's thesis in the journal Expert Systems with Applications.

Titled "Development and validation of a human-machine interface for unmanned aerial vehicle (UAV) control via hand gesture teleoperation," this study focuses on controlling a quadcopter-type unmanned aerial vehicle (UAV) using hand gestures with the aid of a specially designed glove. Within the scope of the study, analytical formulas for the developed drone system were derived, and simulations were conducted in the Matlab & Simulink environment using these formulas. To perform validation tests, a custom-designed device was integrated into the drone, enabling real-time data exchange between the glove and the UAV. Different signal sets from the glove were analyzed to test the system's accuracy. After verifying the control mechanism, the electronic hardware system was integrated based on the Arduino Uno microcontroller. Additionally, a custom circuit was designed within the glove system using the Atmega328P microcontroller. The primary aim of this study is to provide a natural and user-friendly interface for UAV operators, moving away from the artificiality and bulkiness of traditional control systems. The research demonstrates that commonly used hand gestures offer an effective solution for drone operation. The findings indicate that the glove-based hand gesture control system delivers performance comparable to traditional joystick-based systems and proves to be effective for various applications. Furthermore, a single-handed version of the system was developed to explore its potential for providing piloting training to individuals with upper limb disabilities.

For full access to the article: [https://doi.org/10.1016/j.eswa.2025.126828]

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