



FACULTY OF ENGINEERING AND ARCHITECTURE

BULLETIN

● **NOVEMBER 2024** ●

WHAT YOU WILL READ IN THIS ISSUE:

News from Faculty
Actual Topics in Engineering and Architecture
Academic and Scientific Activities



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**FACULTY OF ENGINEERING AND
ARCHITECTURE**

**NEWS FROM
THE FACULTY**

**• MONTHLY •
BULLETIN**

NOVEMBER 2024

NEWS FROM THE FACULTY

ABET EVALUATION COMMITTEE VISITED ISTANBUL GELISIM UNIVERSITY WITHIN THE SCOPE OF ACCREDITATION RENEWAL STUDIES



The US-based "Accreditation Board for Engineering and Technology" (ABET) Committee, a non-profit and independent non-governmental organization that evaluates engineering faculties, visited Istanbul Gelisim University between 15-19 November 2024 as part of its efforts to renew the international accreditations of academic programs.

Advancing with the vision of "Research University", Istanbul Gelisim University (IGU) continues to achieve success on a global scale with its internationalization policies and qualified education staff. At IGU, the university with the most internationally accredited programs in Türkiye, students who graduate from accredited departments graduate with internationally valid diplomas. The ABET accreditation certificate, which expresses the quality assurance evaluation of the training program, reveals the importance that IGU attaches to education and quality in international standards. 5 departments of the IGU Faculty of Engineering and Architecture, which has registered its quality with research and development activities and innovation studies, have abet accreditation. These departments include Computer Engineering (Turkish/English), Mechatronics Engineering (Turkish), Industrial Engineering (Turkish), Civil Engineering (Turkish/English) and Electrical-Electronics Engineering (Turkish/English).

NEWS FROM THE FACULTY

● COMPUTER ENGINEERING ●

COMPUTER ENGINEERING DEPARTMENT WAS SUBJECTED TO ABET ACCREDITATION REVIEW



ABET (Engineering and Technology Accreditation Board) evaluation of Istanbul Gelişim University Computer Engineering Department was held between 17-19 November 2024.

ABET is a prestigious accreditation organization that certifies educational interviews at international standards for programs providing education in the fields of engineering, technology, informatics and applied science. This process evaluated many criteria such as the educational curriculum, student achievements, graduates' accommodation with the sector and the ongoing work of the program.

NEWS FROM THE FACULTY

● ELECTRICAL AND ELECTRONICS ENGINEERING ●

ELECTRICAL AND ELECTRONICS ENGINEERING DEPARTMENT WAS SUBJECTED TO ABET ACCREDITATION REVIEW

Istanbul Gelisim University Department of Electrical and Electronics Engineering was audited by ABET (Engineering and Technology Accreditation Board) on 17-19 November 2024.



ABET is a prestigious accreditation organization that certifies that programs providing education in the fields of engineering, technology, informatics and applied sciences provide education at international standards. During this process, many criteria such as curriculum, student success, graduates' compatibility with the sector and continuous improvement efforts of the program were meticulously evaluated.



NEWS FROM THE FACULTY

● INDUSTRIAL ENGINEERING ●

INDUSTRIAL ENGINEERING DEPARTMENT WAS SUBJECTED TO ABET ACCREDITATION REVIEW

As Istanbul Gelişim University, we continue to take important steps to achieve international quality standards and provide the best education to our students. In this context, the evaluation visit carried out by the Accreditation Board for Engineering and Technology (ABET), an independent organization based in the USA, between November 15-19, 2024, has been completed.

Our Department of Industrial Engineering was subjected to a detailed examination by Assoc. Prof. Joseph Wilck, an ABET committee member from Bucknell University. Many criteria such as the compliance of our program with international standards, education curriculum, laboratory infrastructure, faculty, competencies of our students and success of our graduates in the sector were meticulously evaluated. Assoc. Prof. Joseph Wilck held one-on-one meetings with our faculty members and students during his visit.

On behalf of our department and university, we would like to thank all our academicians, students and graduates who contributed to this process.



NEWS FROM THE FACULTY

● INDUSTRIAL ENGINEERING ●



Working at IGU Faculty of Engineering and Architecture, Department of Industrial Engineering, Assist. Prof. Didem Yilmaz, on November 6 2024 introduced our department laboratory, department and university to high school students. We would like to thank our valuable instructor who shared the meaning and areas of duty of Industrial Engineering, the department curriculum, laboratory and physical facilities, and our educational objectives and principles with high school students.

Cyber Security Training Event was Held.

The Industrial Engineering Club organized a training event on Friday, November 7, 2024, aiming to raise awareness and enhance knowledge in the crucial field of cybersecurity. The event featured expert trainers in cybersecurity and allowed students to gain in-depth knowledge on topics such as cyber threats, security protocols, data protection techniques, and ensuring safety in the digital world.

Skills for the Future Were Acquired

This event marked an important step in preparing students to face security risks they may encounter in their future professional lives. The Industrial Engineering Club stated that it will continue to organize events to support students' professional development and help them adapt to the requirements of the technological world.

NEWS FROM THE FACULTY

● CIVIL ENGINEERING ●

OUR DEPARTMENT WAS SUBJECTED TO ABET AND YÖKAK REVIEWS

Our department has been subjected to audits by the international accreditation organization ABET (Accreditation Board for Engineering and Technology) and the national quality assurance system YÖKAK (Higher Education Quality Board).



The Accreditation Board for Engineering and Technology (ABET), a U.S.-based independent non-profit organization that evaluates engineering faculties, visited Istanbul Gelişim University between November 15-19, 2024, as part of the renewal process for international accreditations. As part of this process, Assoc. Prof. Dr. Md Rashad ISLAM from Colorado State University served as an ABET evaluator for the Civil Engineering Department. Assoc. Prof. Dr. Md Rashad ISLAM holds a Ph.D. in Civil (Transportation) Engineering from the University of New Mexico (USA, 2015), graduating with a perfect GPA of 4.0.

NEWS FROM THE FACULTY

● CIVIL ENGINEERING ●

He earned his M.S. in Structural Analysis (2008) from the University of Minho (Portugal) and the Technical University of Catalonia (Spain) and completed his B.S. in Civil Engineering (2007) at Bangladesh University of Engineering and Technology (BUET). With an impressive 1,310 citations for his academic work, Dr. ISLAM conducted a comprehensive review of our department's educational objectives, learning outcomes, and curriculum, providing valuable insights and feedback based on his extensive expertise and international experience.

The meetings organized within the scope of the renewal of international accreditations were attended by Abdülkadir GAYRETLİ, Chairman of the Board of Trustees; Prof. Dr. Bahri ŞAHİN, Rector; Prof. Dr. Necmettin MARAŞLI, Vice Rector for R&D; Prof. Dr. Nuri KURUOĞLU, Vice Rector for Education and Training; Prof. Dr. Arda ÖZTÜRKCAN, Vice Rector for Quality, Accreditation and Internationalization; Prof. Dr. Hasan Hakan BOZKURT, Quality Coordinator; and Prof. Dr. Hasan Hakan BOZKURT, ABET Coordinator and Quality Commissioner of Istanbul Gelisim University. Prof. Kenan ŞENTÜRK participated.

Our department was also audited by the national quality assurance system YÖKAK. In this context, our department's management processes, quality assurance systems and student-oriented practices were examined in detail. The audit and evaluations have been an important step for our civil engineering program to maintain its compliance with international standards and to provide a better quality education to our students.

NEWS FROM THE FACULTY

● CIVIL ENGINEERING ●

ORIENTATION PRESENTATION FOR ENGLISH PROGRAM STUDENTS



Assist. Prof. Dr. Ahmad Reshad NOORI, Head of the Department, gave an orientation presentation to the students of the English Civil Engineering Program in November. In this orientation presentation, detailed information was given about the general structure of the department, educational opportunities and the functioning of the academic program. In addition, students were introduced to the laboratories, technical facilities, academic staff and research opportunities in the department. During the presentation, guidance and counseling services provided to support students' academic success and activities that will contribute to their professional development were also emphasized. This event, which provided an important opportunity for new students to quickly adapt to the department, attracted great interest from the students.

NEWS FROM THE FACULTY

● CIVIL ENGINEERING ●

As of November, the students of the Department of Civil Engineering have successfully completed their midterm exams for the Fall Semester 2024-2025. After an intensive academic semester, our students have successfully left behind the exam processes in which they demonstrated their knowledge and competencies. We wish our students, who stand out with their devoted work in their courses, continued success before the final exams. We would like to thank all our academic and administrative staff who contributed to this process.



Head of Civil Engineering Department, Assist. Prof. Dr. Ahmad Reshad NOORI's graduate student Ayat ABBARA defended her thesis titled "Petek Çerçeve Sistemlerinin Statik ve Dinamik Analizi" and graduated.

Rıza TORKAN, PhD student of Prof. Dr. Mustafa KARAŞAHİN, one of our Civil Engineering faculty members, graduated by defending his thesis titled "Strain-Based Nonlinear Analysis of High-Reinforced Concrete Buildings Using Fiber Model in Time Domain".

NEWS FROM THE FACULTY

● MECHATRONICS ENGINEERING ●

OUR DEPARTMENT WAS SUBJECTED TO ABET AND YÖKAK REVIEWS

During the inspections carried out within the scope of accreditation renewal studies, the delegation from ABET met with the ABET coordinator of the Faculty of Engineering and Architecture, our faculty member Dr., on 17-19 November. Lecturer Under the coordination of member Kenan ŞENTÜRK, they inspected 5 MMF departments, including the Mechatronics Engineering Department. During the inspection, one of the faculty members of the Mechatronics Engineering Department, Prof. Dr. Hamdi Alper ÖZYİĞİT, Dr. Lecturer Member Cansu NOBERİ, Dr. Lecturer Member Safar POURABBAS and Dr. Lecturer Member Haydar İzzettin KEPEKÇİ, Research Assistant Res. See. Tunay ACIMAN, Res. See. Ufuk ATEŞOĞLU and Res. See. The evaluator, who met with Muhammed Lütfi TIRABZON, also made consultations and checks with stakeholders and students, and as a result of the consultations and controls, the Department of Mechatronics Engineering was subjected to inspection.



NEWS FROM THE FACULTY

● ARCHITECTURE ●

ASSISTANT PROF. DR. N. ÖMER SAATCIOĞLU FROM THE DEPARTMENT OF ARCHITECTURE HAS SUBMITTED A NATIONAL PATENT APPLICATION FOR HIS INNOVATIVE INVENTION, THE "VOLUMETRIC SOLAR CELL."

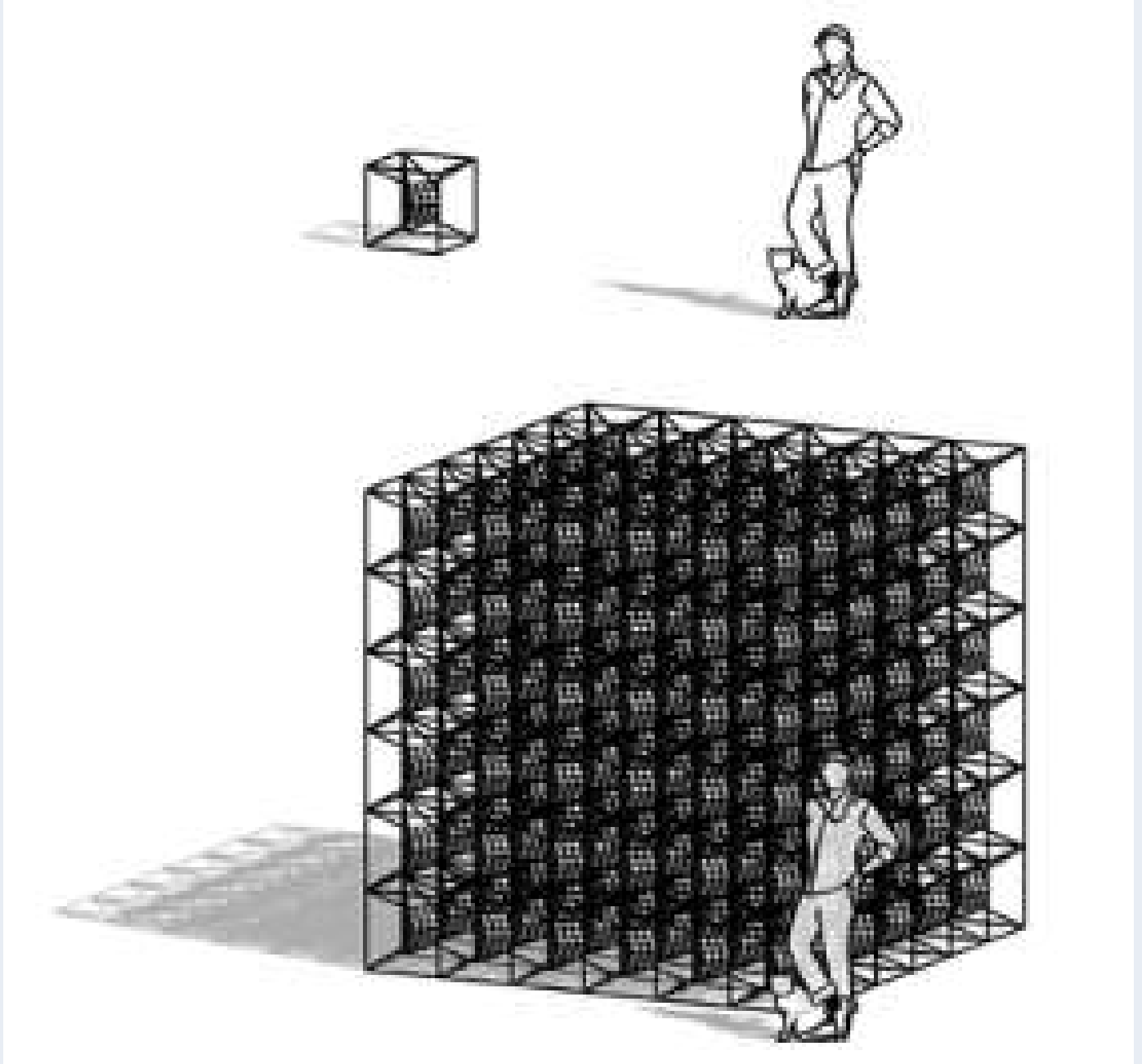


This innovative design aims to provide an alternative to traditional solar panels, which typically require large surface areas, by enabling high-efficiency energy production in compact spaces. The invention achieves this through the use of transparent solar cells arranged in a volumetric design.

The system allows sunlight to pass through multiple layers of transparent solar cells, each designed to harness different wavelengths of light. By optimizing the layers' transparency and configuration, the design maximizes energy production from both direct and reflected light. At its core, high-efficiency opaque solar cells are used to further enhance performance. This innovative structure ensures effective use of sunlight, even in confined spaces.

NEWS FROM THE FACULTY

● ARCHITECTURE ●



While transparent solar cells are less efficient than conventional panels, the unique design compensates for this with increased surface area and efficient use of reflections. As a result, the system offers an exciting new alternative for solar energy production.

Dr. Saatcioğlu holds a total of eight patented inventions, including two international and six national patents.

NEWS FROM THE FACULTY

● ARCHITECTURE ●



On 4.11.2024, the 1st Jury was held within the scope of the MIM107 Introduction to Architectural Design I course conducted by Lecturer Burak Kaan Yılmazsoy. Dr. Gizem Nur from Yıldız Technical University and Mine Çiçek from Istanbul Technical University were invited to the jury.



On 23. 11.2024, Architecture Department Lecturer Burak Kaan Yılmazsoy made an online presentation on "Sustainable Mobility and Micro Mobility in Slow Cities, The Example of Mudurnu" via Zoom as part of the 10th International Architecture

and Design Congress. The congress program can be accessed via the link [23.11.2024 tarihinde Mimarlık Bölümü öğretim görevlisi Burak Kaan Yılmazsoy, 10. Uluslararası Mimarlık ve Tasarım Kongresi kapsamında "Yavaş Şehirlerde Sürdürülebilir Hareketlilik ve Mikro Mobilite, Mudurnu Örneği".](#)

NEWS FROM THE FACULTY

● ARCHITECTURE ●



On 23. 11.2024, Architecture Department faculty member Assoc. Prof. Türkan Uzun made an online presentation on “Peter Zumtor and Space Perception” via Zoom as part of the 10th International Architecture and Design Congress. The congress program can be accessed via the link [23. 11.2024 tarihinde Mimarlık Bölümü öğretim üyesi Doç. Dr. Türkan Uzun, 10. Uluslararası Mimarlık ve Tasarım Kongresi kapsamında “Peter Zumtor ve Mekan Algisi ’ konusunda zoom üzerinden online bir sunum gerçekleştirmiştir. Kongre programına 4.11.2024 tarihinde Öğr. Gör. Burak Kaan Yılmazsoy yürütücülüğündeki MIM107 Mimari Tasarıma Giriş I dersi kapsamında 1. Jüri gerçekleştirilmiştir. Yıldız Teknik Üniversitesinden Dr. Gizem Nur ve İstanbul Teknik Üniversitesinden Mine Çiçek jüriye davet edilmiştir. linki üzerinden erişilebilir.](#)

**FACULTY OF ENGINEERING AND
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**ACTUEL TOPICS IN
ENGINEERING AND
ARCHITECTURE**

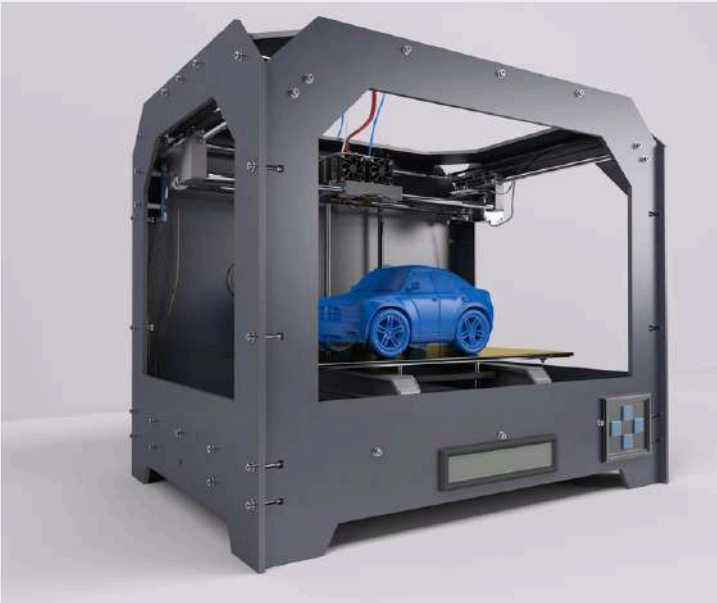
**• MONTHLY •
BULLETIN**

NOVEMBER 2024

ACTUEL TOPICS IN ENGINEERING AND ARCHITECTURE

● MECHATRONICS ENGINEERING ●

3D PRINTER TECHNOLOGIES: THE PRODUCTION METHOD OF THE FUTURE – RES. ASST. UFAK ATEŐOĐLU



Today, 3D printer technologies stand out as an innovation that radically changes traditional production methods. This technology, which finds a wide range of applications from product design to prototype production, offers unique advantages such as reducing costs, customizing design and accelerating production processes.

3D printers enable a digital design to be transformed into a physical object. This process is usually carried out through additive manufacturing. After the design data is created in a computer system, the printer adds the material in thin layers, one on top of the other, to create the final product. The materials used can vary from plastics, metals, ceramics and even biological materials.

There are many types of 3D printers that serve different application areas:

FDM (Fused Deposition Modeling): Works by melting plastic filaments and combining them into layers. Usually used for low-cost prototypes.

ACTUEL TOPICS IN ENGINEERING AND ARCHITECTURE

● MECHATRONICS ENGINEERING ●

SLA (Stereolithography): Creates objects by laser hardening of liquid resin. It is preferred for works requiring high precision and detail.

SLS (Selective Laser Sintering): Forms layers by combining powdered material with a laser. It is frequently used in industrial applications.

Advantages and Impacts

The advantages of 3D printing technologies are reshaping not only production processes but also the way of doing business:

- **Cost Efficiency:** Geleneksel kalıp ve alet üretim süreçlerini ortadan kaldırarak düşük hacimli üretimde ciddi maliyet tasarrufu sağlar.
- **Customization:** It is ideal for producing user-specific products, especially in the field of medical devices, fashion and design.
- **Speed:** Accelerates product development processes by completing prototype production within hours.
- **Waste Reduction:** Ensures an environmentally friendly production by using only the necessary material.

3D printers have the potential to not only transform existing industries, but also to create entirely new ones. The production of organs and tissues with bioprinting, enormous printers used to print huge structures in the construction industry, even 3D printers used in space are just a few of the future uses of this technology. This is why 3D printer technologies are at the forefront of the production methods of the future.

ACTUEL TOPICS IN ENGINEERING AND ARCHITECTURE

● SOFTWARE ENGINEERING ●

CYBERSECURITY AND DATA PRIVACY: THE MOST CRITICAL ISSUE OF OUR TIME – RES. ASST. SEVCAN BULUT



With the rapid advancement of technology, nearly every aspect of our lives has become digitized. However, this digital transformation brings not only great opportunities but also significant risks. Increasing cyber threats and data breaches have become a reality that affects everyone, from individuals to companies. Therefore, cybersecurity and data privacy have become more critical than ever in the field of software engineering.

The Rise of Cyber Threats

As of 2024, data breaches and cyberattacks worldwide are becoming increasingly sophisticated. Not only individual users but also governments and large corporations are becoming targets of these threats. Methods such as ransomware, phishing attacks, and malware are among the most frequently used tools of today's cybercriminals. As a result, implementing security principles in software development processes has become an absolute necessity.

ACTUEL TOPICS IN ENGINEERING AND ARCHITECTURE

● SOFTWARE ENGINEERING ●

Security Principles: The Foundation

One of the cornerstones of cybersecurity is incorporating security principles at every stage of software development. The Secure Software Development Lifecycle (SSDLC) includes steps to prevent vulnerabilities in an application right from the design phase. These principles ensure that systems are reliable, accessible, and maintain integrity without compromise.

Threat Modeling

When developing a software system, identifying potential threats in advance and creating strategies to counter them provides a proactive security approach. Threat modeling aims to analyze the ways cyberattacks can be carried out and the measures needed to mitigate them. This method plays a critical role, especially in minimizing security risks for large-scale projects.

Data Protection Strategies

Data privacy ensures the protection of information, the most valuable asset of both individuals and organizations. Regulations such as the European Union's General Data Protection Regulation (GDPR) have introduced strict standards and significant penalties in this area. Data encryption, anonymization, access controls, and regular security audits are essential elements of a robust data protection strategy.

Cybersecurity and data privacy are among the most critical components of software engineering. Without robust policies and technologies in these areas, the risks of falling behind the advantages offered by the digital world grow significantly. Individuals and organizations that adopt secure software development processes will find themselves in a stronger and safer position in the digital future. Focusing on cybersecurity and data privacy is no longer an option but a necessity for software engineers to build the future.

**FACULTY OF ENGINEERING AND
ARCHITECTURE**

**ACADEMIC AND
SCIENTIFIC
ACTIVITIES**

**• MONTHLY •
BULLETIN**

NOVEMBER 2024

ACADEMIC AND SCIENTIFIC ACTIVITIES

● INDUSTRIAL ENGINEERING ●



Prof. Dr. Kenan Ozden's new article has been published. Prof. Kenan Özden, a faculty member of the Industrial Engineering Department, has had his article titled "A Market Share Research Model with Markov Chains and an Implementation on Smart Phones" published in the International Journal of Engineering Technologies.

We wish Prof. Kenan Ozden success for his future works



Prof. Dr. Kenan Ozden's new article has been published. Department of Industrial Engineering Faculty Member, Professor Kenan Ozden's article titled "A Conceptual Framework for Studying the Effectiveness of Ballistic Missile Defence System (BMDS) and a Proposed Model" has been published in the "Istanbul Gelisim University Journal of Social Sciences".

We wish Prof. Kenan Ozden success for his future works.

ACADEMIC AND SCIENTIFIC ACTIVITIES

● CIVIL ENGINEERING ●

The book titled “Finite Element Applications in Structural Mechanics (ANSYS)” co-authored by Assist. Prof. Dr. Ahmad Reshad NOORI, Head of Civil Engineering Department, was published.

Our Head of Civil Engineering Department, Dr. Assoc. Prof. Dr. Ahmad Reshad NOORI presented three scientific papers as a co-author in two international conferences held in November 2024. The following papers were presented at the III. International Korkut Ata Scientific Research Conference held in Osmaniye on November 22-24, 2024: “Static Analysis of Variable Cross-Section Beams Resting on Winkler Type Elastic Foundation”, ‘Free Vibration Analysis of Variable Cross-Section Beams Resting on Winkler Type Elastic Foundation’. In addition, the paper titled “Static Analysis of Axisymmetric Thin Cylindrical Shells by Complementary Functions Method” was presented at the 8th International Conference on Engineering Technologies (ICENTE 24) co-organized by Selçuk and Sinop Universities on November 21-23, 2024. These papers reflect the authors' joint work and scientific collaborations in the field of engineering mechanics.

The article titled “Efficient Roof Selection in Rainwater Harvesting: Hybrid Multi-criteria and Experimental Approach” co-authored by Res. Assist. Oğuzhan Murat HALAT, one of our Civil Engineering research assistants, was published in the Q1 ranked journal Water Resources Management.

Res. Assist. Şeyhmus Can TUNÇ, one of our Civil Engineering research assistants, co-authored a proceeding paper titled “Post-Earthquake Condition of Lifeline Systems Following the Kahramanmaraş Earthquakes” which was accepted by The National Disaster Research Report of NIED located in Japan to be printed in the proceedings booklet.

ACADEMIC AND SCIENTIFIC ACTIVITIES

● MECHATRONICS ENGINEERING ●

Mechatronics Engineering faculty member Asst. Prof. Haydar Kepekçi's article titled "Thermal and mechanical analysis of wheel rim in Formula 1 vehicles" was published in Thermal Science journal with SCI scope and Q4 impact factor.



Mechatronics Engineering Department faculty member Asst. Prof. Haydar Kepekçi's article titled "Examination of Thermal Dispersion and Airflow within a Refrigerator" has been published in TR Indexed "Çukurova University Journal of the Faculty of Engineering".



Asst. Prof. Haydar Kepekçi, faculty member of the Department of Mechatronics Engineering, presented a paper titled "The Role of Biomaterials in Sustainable Energy Storage Systems" online at the "International Conference on Biomaterials and Biodevices" congress held in Dubai on November 18-19, 2024.

ACADEMIC AND SCIENTIFIC ACTIVITIES

● ARCHITECTURE ●

The article titled Iranian Industrial Heritage: Adaptive Re-use of the Rayy Cement Factory, written by Assoc. Prof. İlke CİRİTCİ, faculty member of the architecture department, with Samin Shadnia, was published in English in the Journal of Architecture, Arts and Heritage (JAH) - Vol 3, Issue 3, November 2023 e-ISSN: 2822-437X. The relevant article can be accessed via the link <https://dergipark.org.tr/tr/download/article-file/4166129>.

In summary, the article aims to discuss the solution proposals for the building located in the city of Rayy in Iran, which was originally a cement factory, falling out of use as a result of not being able to find a use suitable for its original purpose. Iran has many cultural artifacts from ancient times to the present day. As a result of the developments in recent centuries, there are valuable artifacts from Iran's industrialization period that have been preserved and re-functioned and brought back to life. Preserving the structure in question will not only add value to the city, but will also strengthen the sense of belonging of the city dwellers to the city they live in as a group of buildings in the city's memory.

• TAG •

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